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Federation Proceedings

CONTENTS

FEDERATION PROGRAM, APRIL 16–20, 1956

Fortieth Annual Meeting: General Information 625
Federation Joint Session 628
Motion Pictures 628
Inter-Society Sessions 629
American Physiological Society 643
American Society of Biological Chemists 675
American Society for Pharmacology and Experimental Therapeutics 705
American Society for Experimental Pathology 723
American Institute of Nutrition 731
American Association of Immunologists 741
Exhibits 751
Author Index 765
Directory of Special Meetings and Sessions Chart ..... double spread

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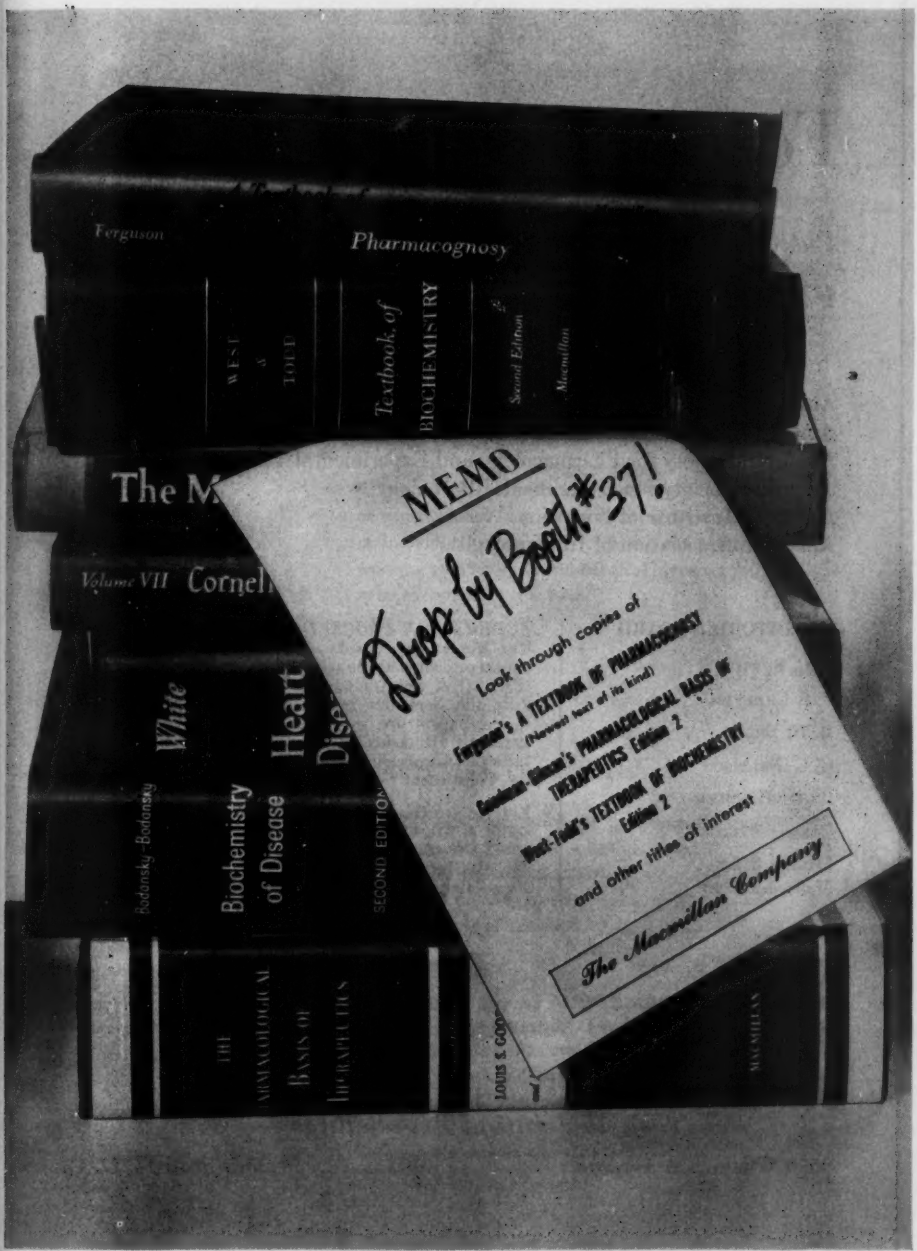
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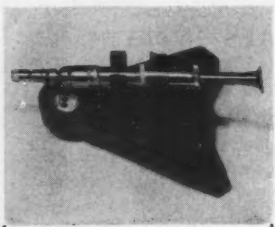

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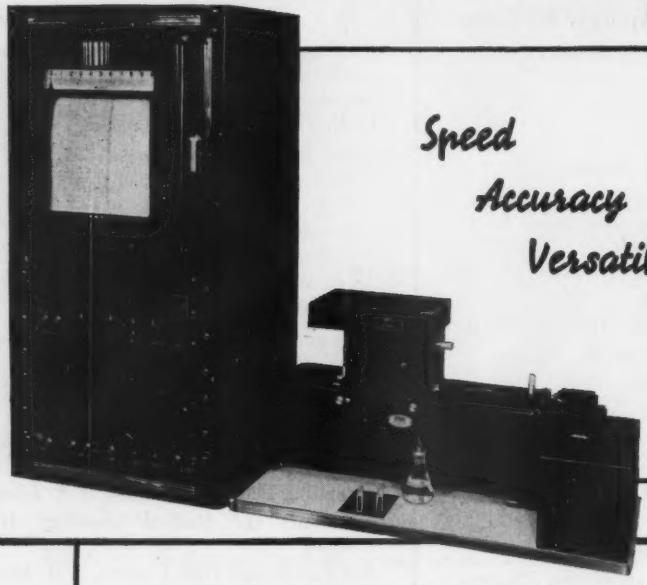

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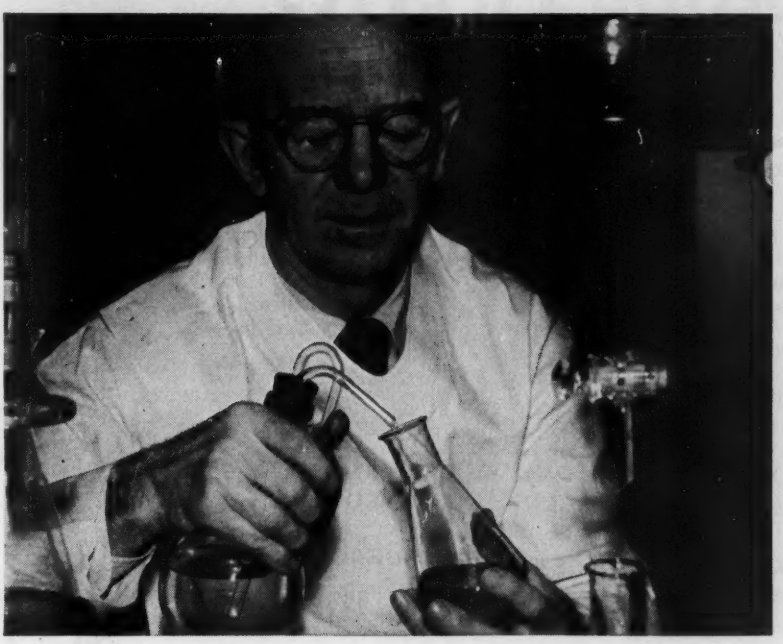

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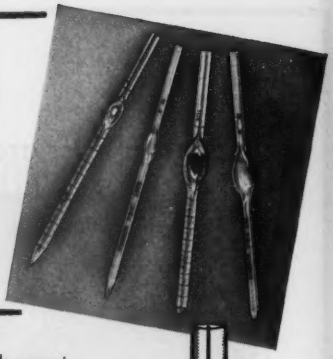

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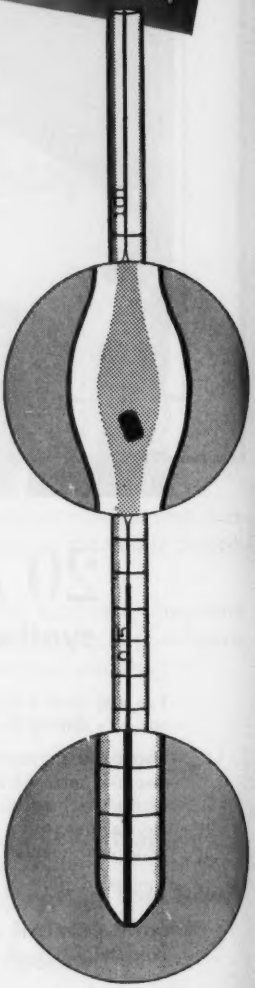

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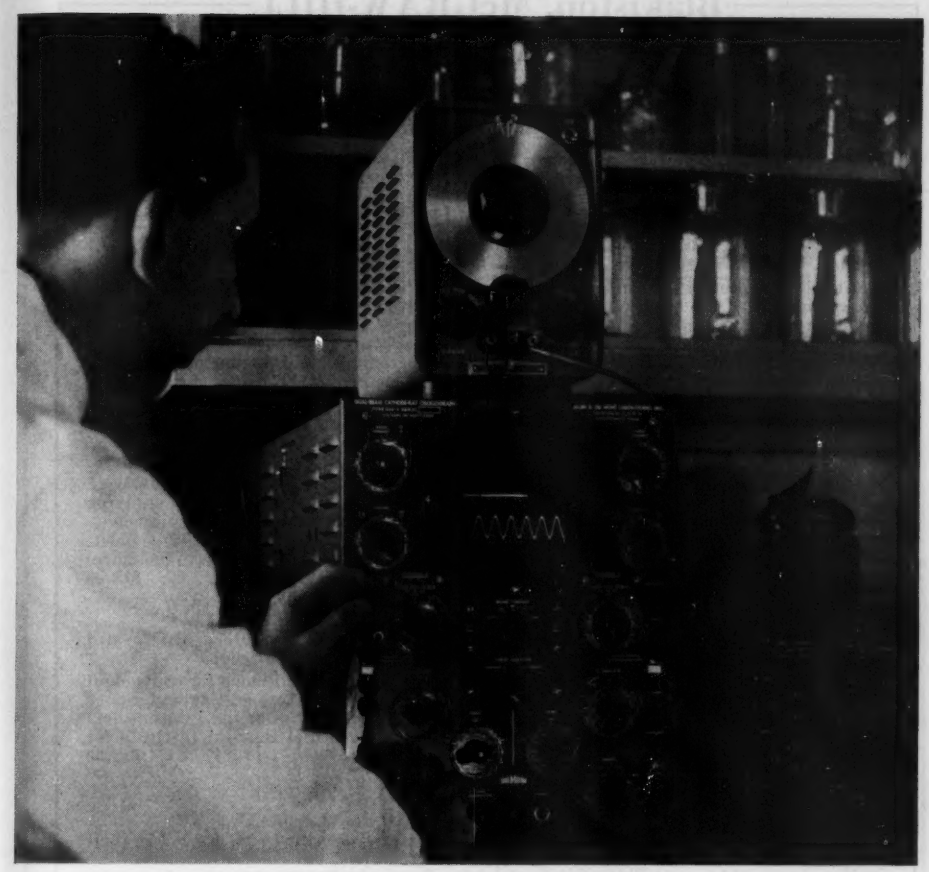

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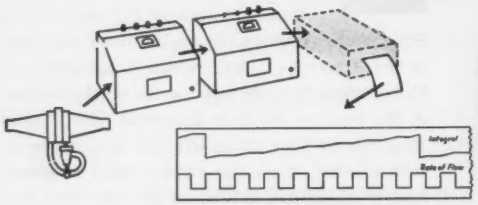

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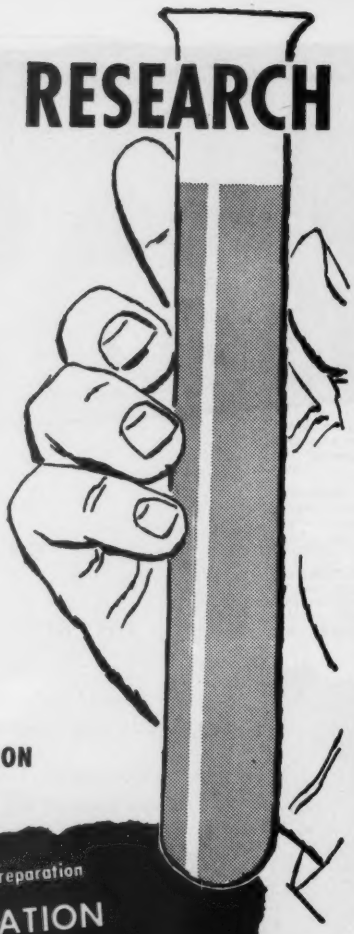

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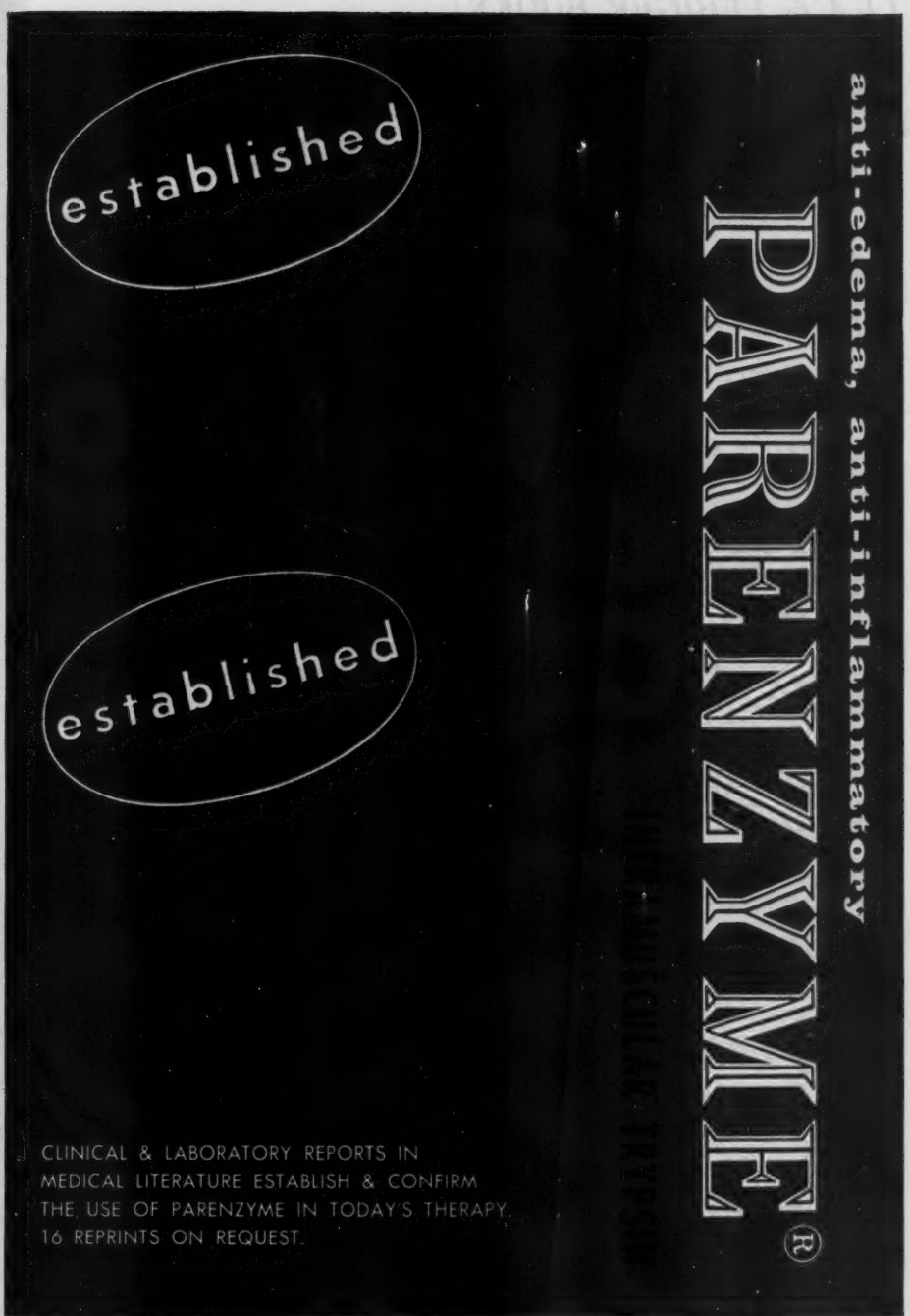
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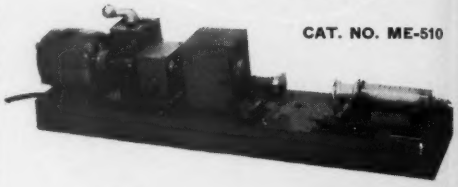

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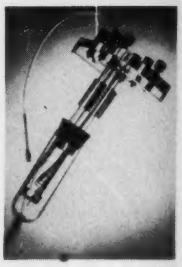

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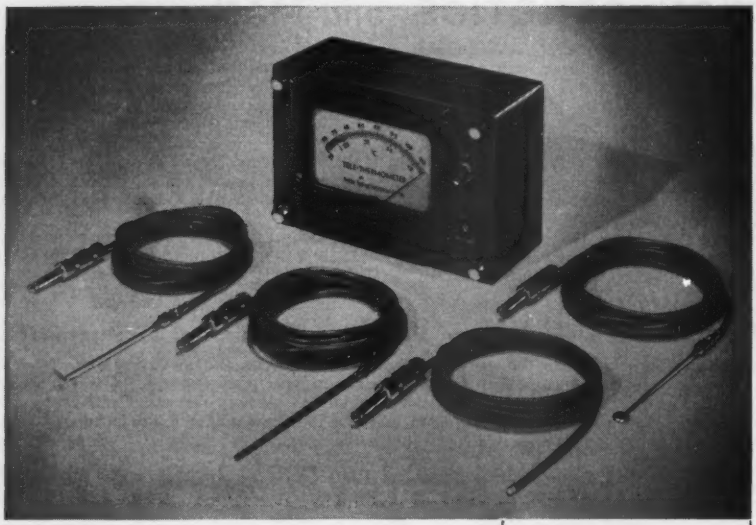

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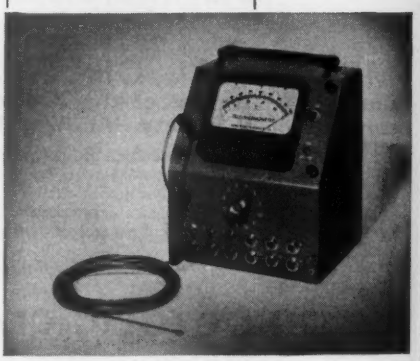

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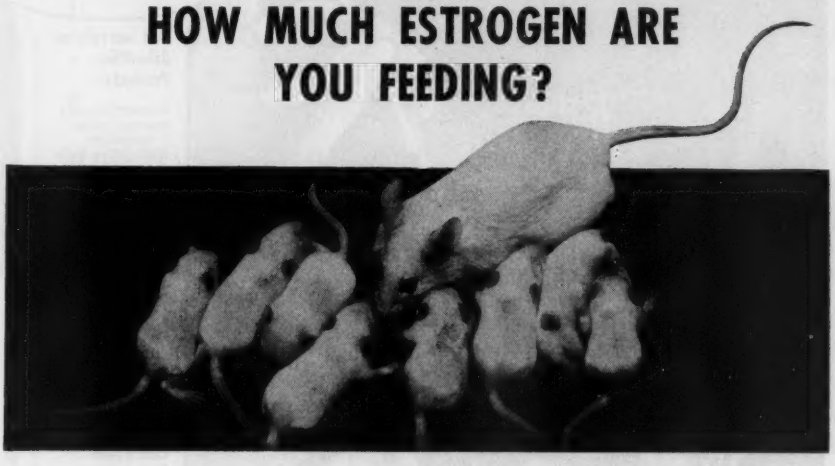

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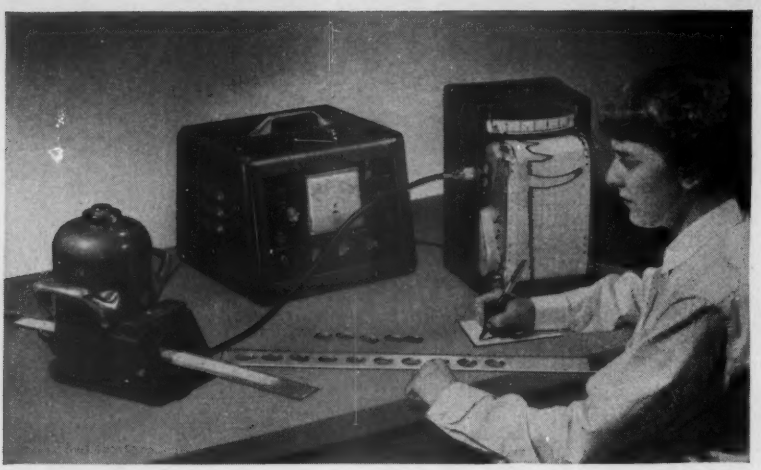

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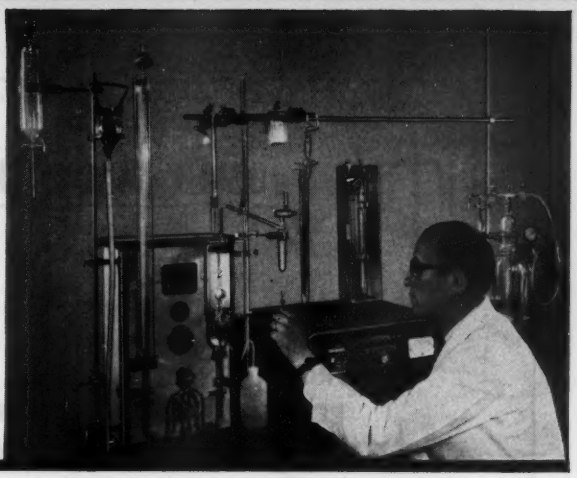

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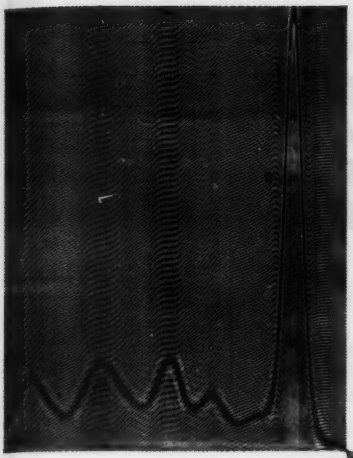
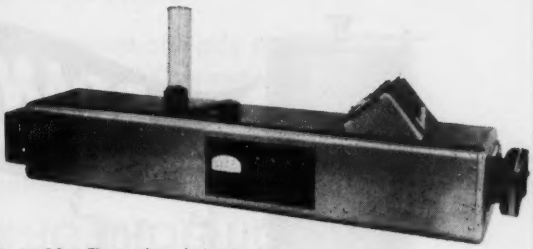


Ascending branch of albumin peak.



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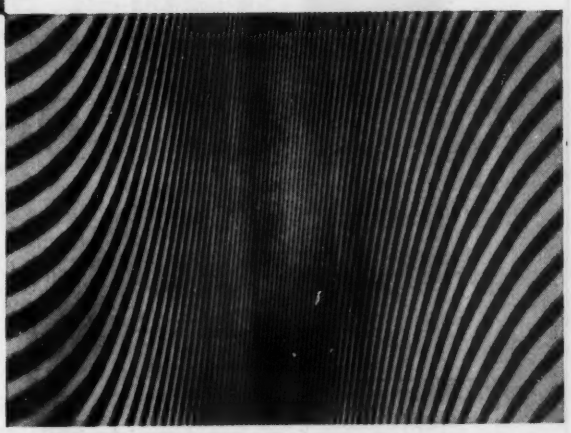

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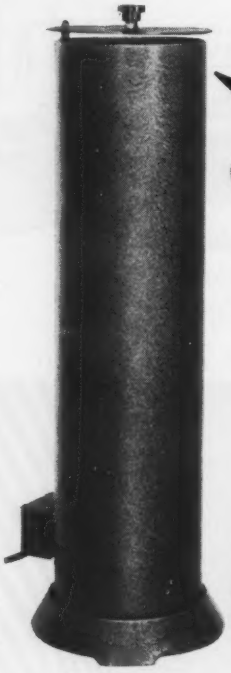

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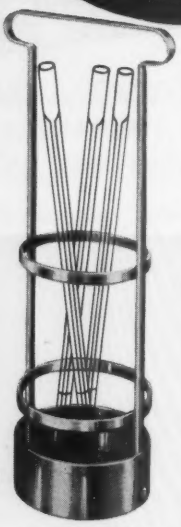

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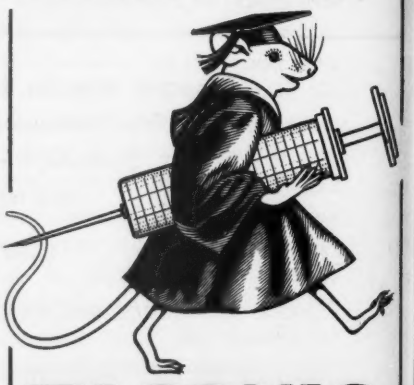

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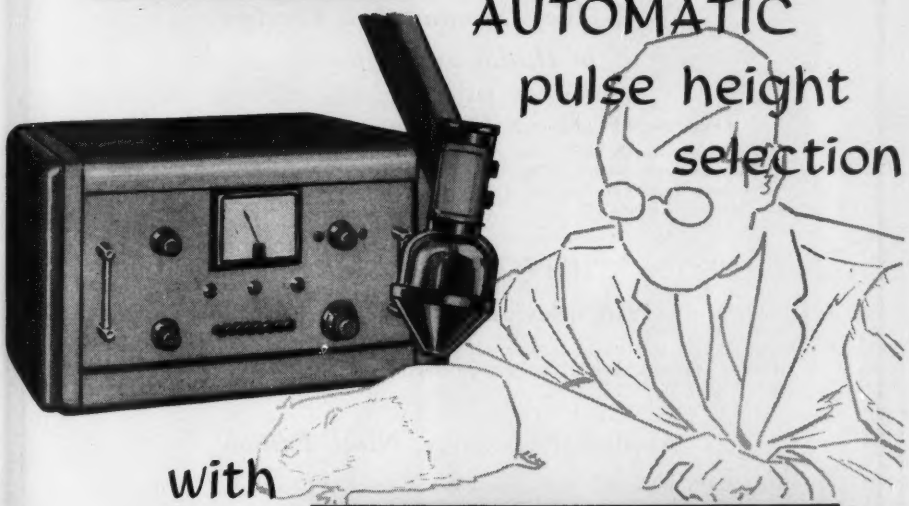

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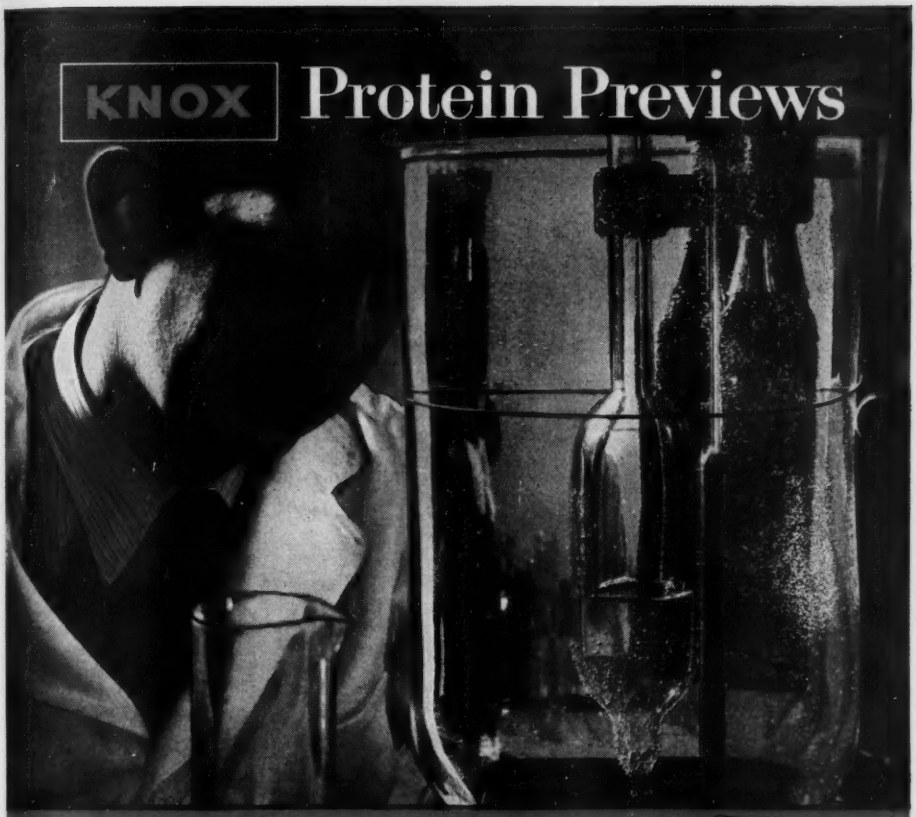

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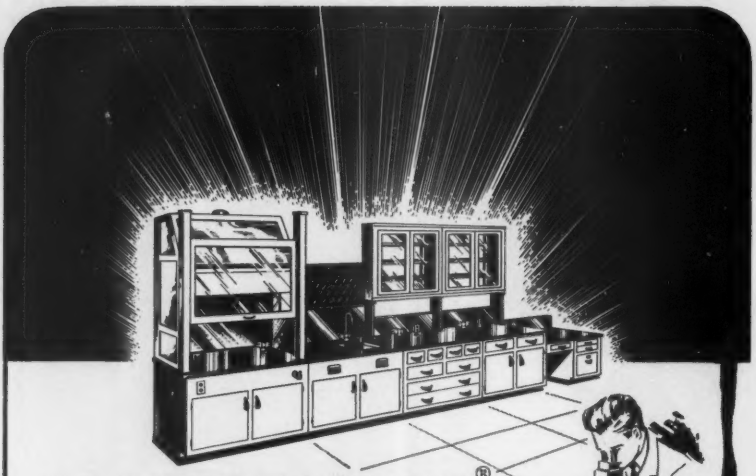

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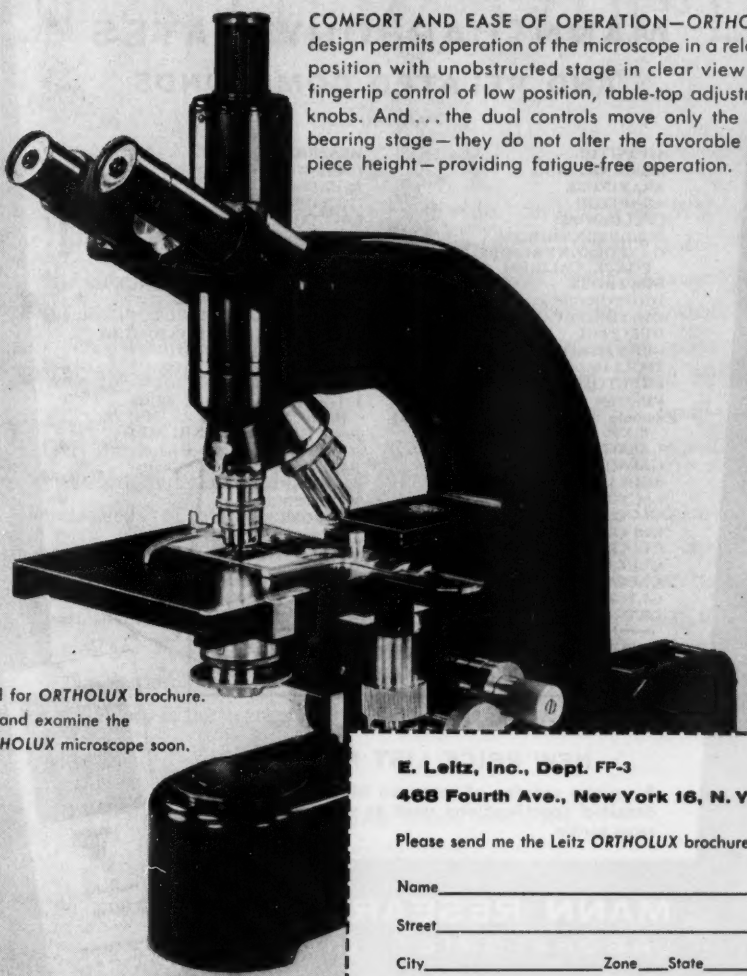

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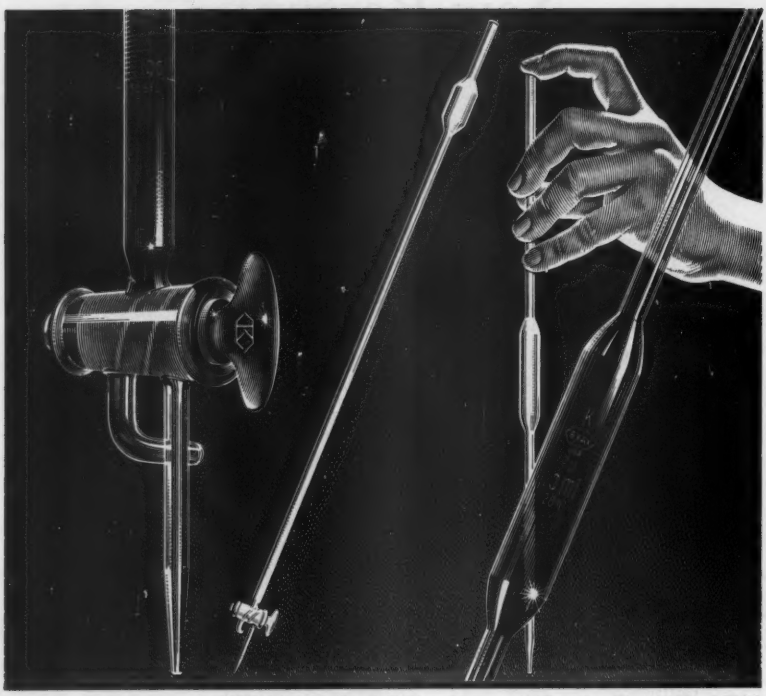

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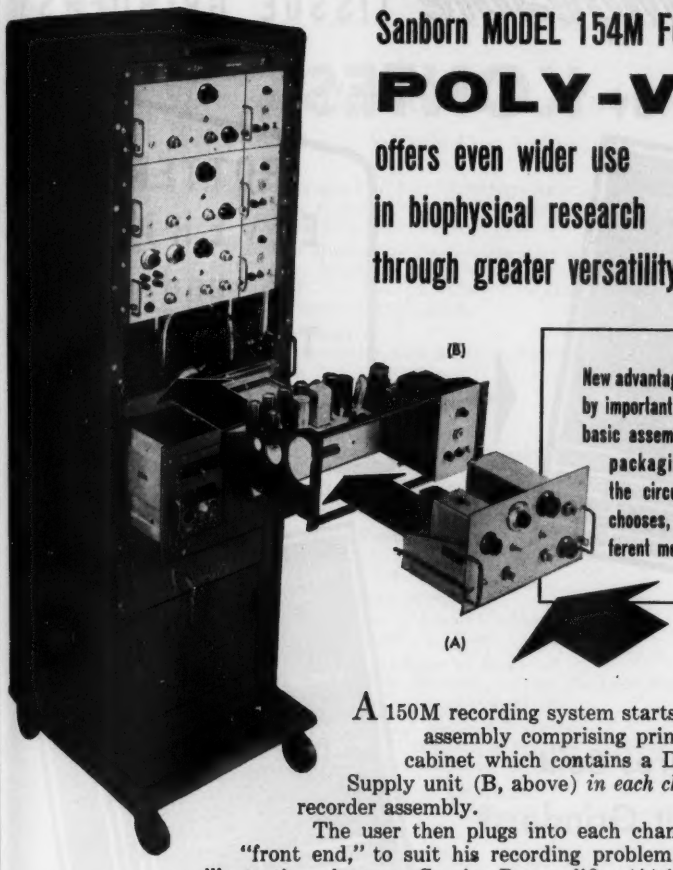

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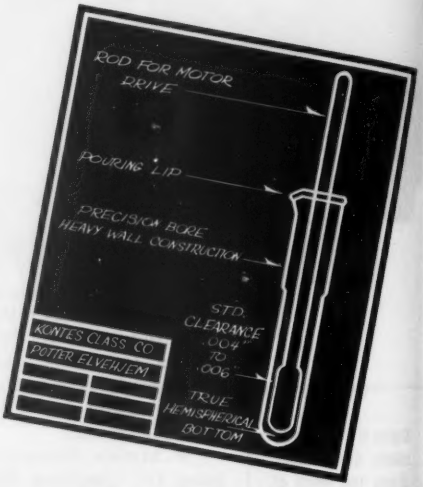

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Enzymes: Units of Biological Structure and Function
Henry Ford Hospital International Symposium
Edited by O. H. GAEBLER, *Henry Ford Hospital, Detroit*
April 1956, about 650 pp., illus.

Methods in Enzymology
Volume III: Preparation and Assay of Substrates
Edited by S. P. COLOWICK and N. O. KAPLAN, *McCollum-Pratt Institute, Johns Hopkins University*
June 1956, about 1000 pp., illus.

Hormones and the Aging Process
Edited by GREGORY PINCUS, *Worcester Foundation for Experimental Biology*
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The Dynamics of Living Protoplasm
By L. V. HEILBRUNN, *University of Pennsylvania*
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The Chemistry and Reactivity of Collagen
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By K. H. GUSTAVSON
Feb. 1956, 403 pp., illus., $9.00

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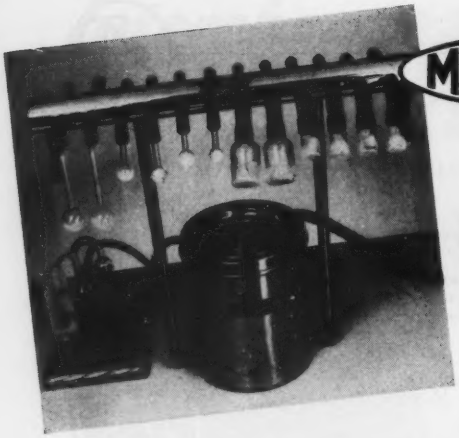

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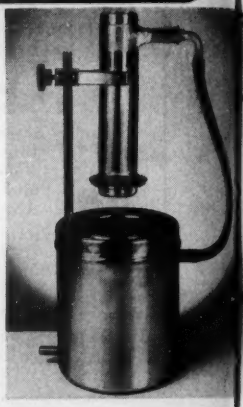

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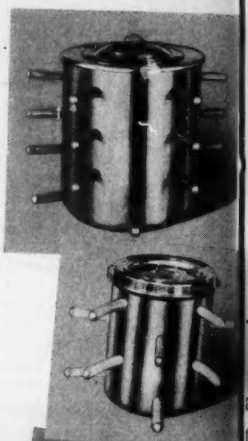

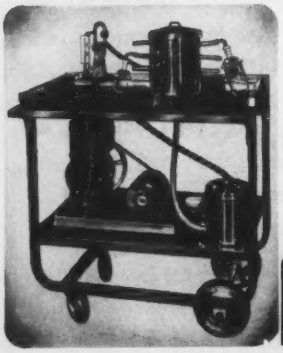

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1. Wolfson, W. Q.: Mississippi Valley M. J. 77: 66, 1955.

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FEDERATION NOTICE

Membership in the Federation of American Societies for Experimental Biology

There is no provision in the Federation Constitution for individual membership. An individual wishing to associate himself with the Federation must become a member of one or more of the six constituent Societies; such membership entitles him to present papers at the annual meetings of the Federation and to receive the quarterly publication, FEDERATION PROCEEDINGS. Since requirements and procedures for election to membership vary among the six Societies, the following information is provided:

1. *American Physiological Society.* Any resident of North America who has conducted and published meritorious original researches in physiology shall be eligible for membership. Names of candidates must be proposed in writing by at least two members of the Society, and from these names the Council shall nominate candidates for election to membership at a regular meeting of the Society. *For further information and proposal forms, address* DR. M. O. LEE, Executive Secretary, 9650 Wisconsin Ave., Washington 14, D. C.

2. *American Society of Biological Chemists.* Qualified investigators who have conducted and published meritorious original investigations in biological chemistry are eligible for membership. Nominations shall be made and seconded by members of the Society and shall be submitted to the Council, who shall determine eligibility and make recommendations to the Society at any regular meeting. *Nomination blanks and further information may be obtained from* DR. PHILIP HANDLER, Secretary, Duke University School of Medicine, Durham, N. C.

3. *American Society for Pharmacology and Experimental Therapeutics.* Any person who has conducted and published meritorious investigations in pharmacology or experimental therapeutics and who is an active investigator in one of those fields, shall be eligible to membership. Candidates shall be proposed by two members who are not members of the Society Council, for consideration and recommendation by the Membership Committee and the Council. *Further information and application forms may be obtained from* DR. C. C. PFEIFFER, Secretary, Emory University College of Medicine, Emory University Ga.

4. *American Society for Experimental Pathology.* Any American investigator who has contributed meritorious work in pathology within three years prior to his candidacy is eligible for membership. Candidates shall be nominated by two members and the nominations approved by the Council for election by Society members at a regular meeting. *Additional information and nomination forms may be obtained from* DR. C. C. ERICKSON, University of Tennessee, Institute of Pathology, Memphis 3, Tenn.

5. *American Institute of Nutrition.* Qualified investigators who have independently conducted and published meritorious original investigations in some phase of the chemistry or physiology of nutrition, and who have shown a professional interest for at least five years, are eligible for membership. Nominations shall be made and seconded by members of the Society and shall be submitted to the Council for recommendation to the Society at any regular meeting. *For nomination blanks and additional information address* Dr. R. W. ENGEL, Secretary, Virginia Polytechnic Institute, Blacksburg, Va.

6. *American Association of Immunologists.* Any qualified person engaged in the study of problems related to the purpose of the Association may apply for membership. Candidates must be nominated by two members of the Association and applications must be accompanied by letters of recommendation, curriculum vitae and a list of reprints of publications. The Council shall determine eligibility and submit the names of eligible candidates to the membership at the annual meeting. *For further information and application blanks, address* DR. F. S. CHEEVER, Secretary, University of Pittsburgh, Graduate School of Public Health Pittsburgh, Pa.

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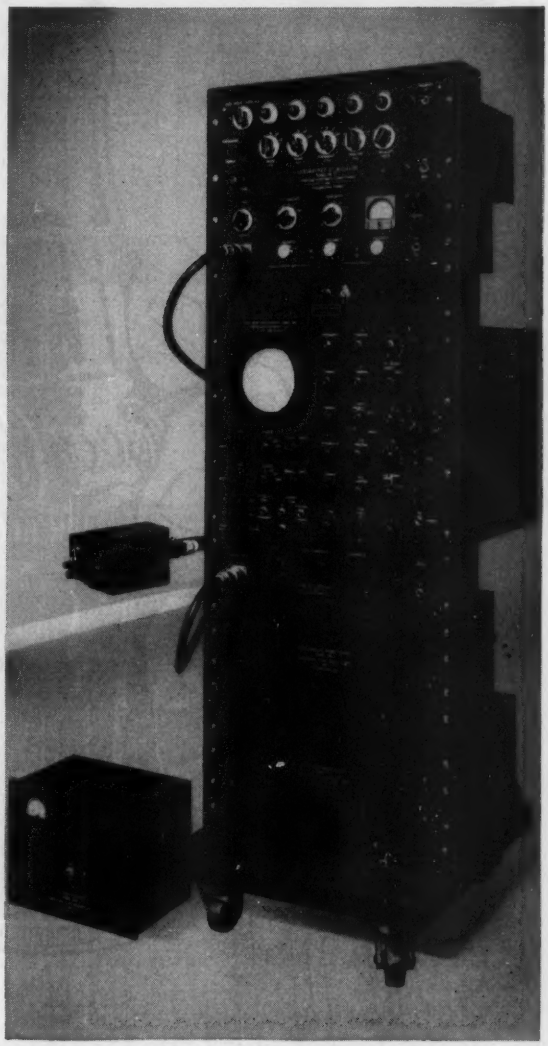

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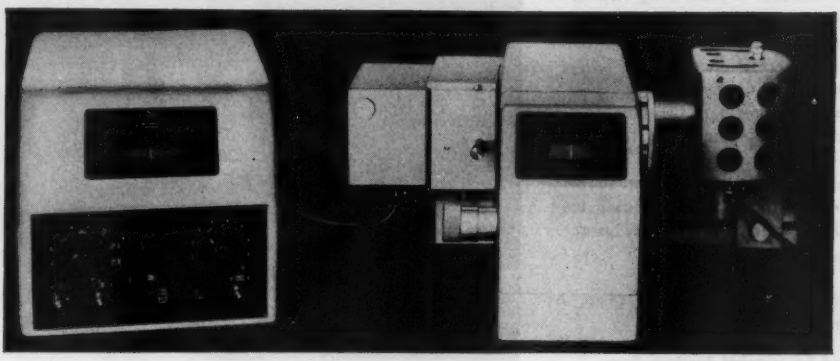

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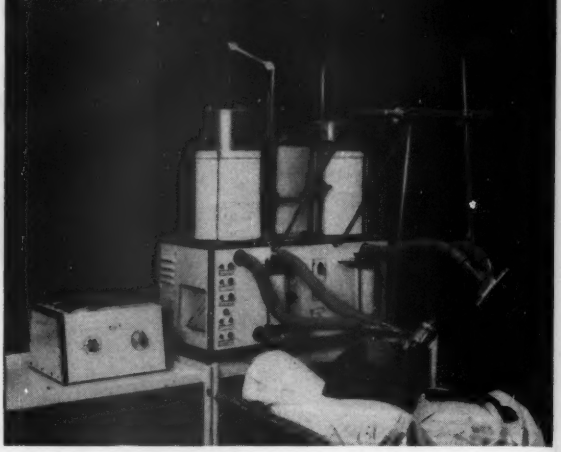

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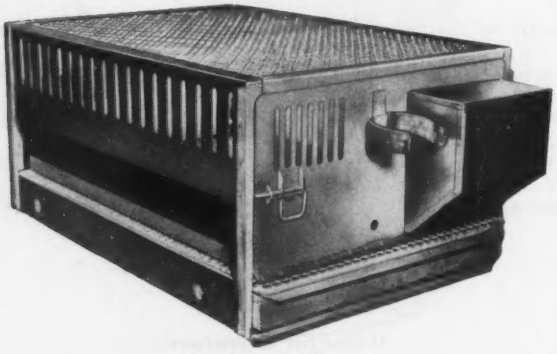

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To facilitate the publication of an accurate and up-to-date Membership List in the December issue of FEDERATION PROCEEDINGS, it is requested that *any member whose entry in the December 1955 issue is incorrect* furnish the Secretary of his society with the following data, in duplicate, on 3″ x 5″ cards: Name; Degree (highest); Mailing Address (street address, city, zone, state); Present Position (title and department or branch); Society membership and year of election to membership in that society. If you are retired, give only degree(s), home address, and society membership(s) with year(s). If you are officially carried on the rolls of your society as a retired or honorary member, please so indicate.

Names and addresses of the Society Secretaries are as follows:

The American Physiological Society—Dr. M. O. LEE, *Executive Secretary*, 9650 Wisconsin Ave., Washington 14, D. C.

American Society of Biological Chemists—Dr. PHILIP HANDLER, Duke University School of Medicine, Durham, N. C.

American Society for Pharmacology and Experimental Therapeutics—Dr. CARL C. PFEIFFER, Emory University School of Medicine, Emory University, Ga.

The American Society for Experimental Pathology—Dr. C. C. ERICKSON, Institute of Pathology, University of Tennessee, Memphis 3, Tenn.

American Institute of Nutrition—Dr. R. W. ENGEL, Virginia Polytechnic Institute, Blacksburg, Va.

The American Association of Immunologists—Dr. F. S. CHEEVER, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pa.

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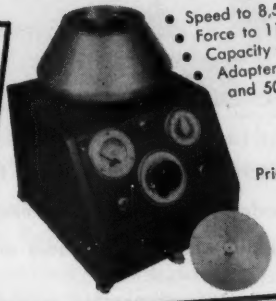

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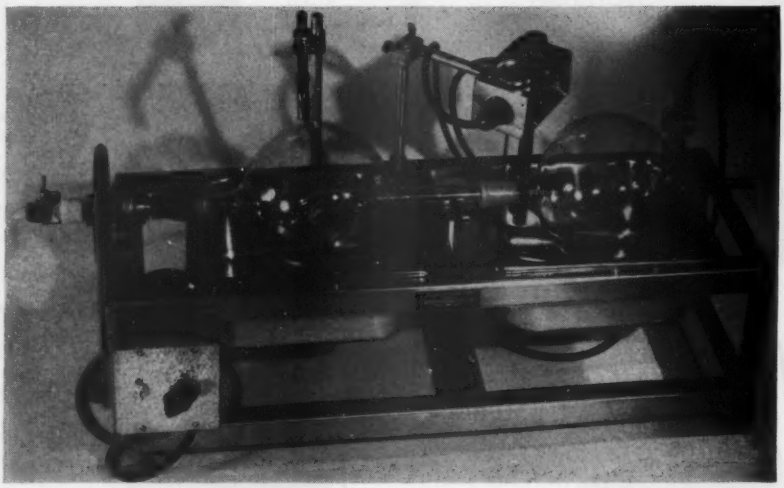

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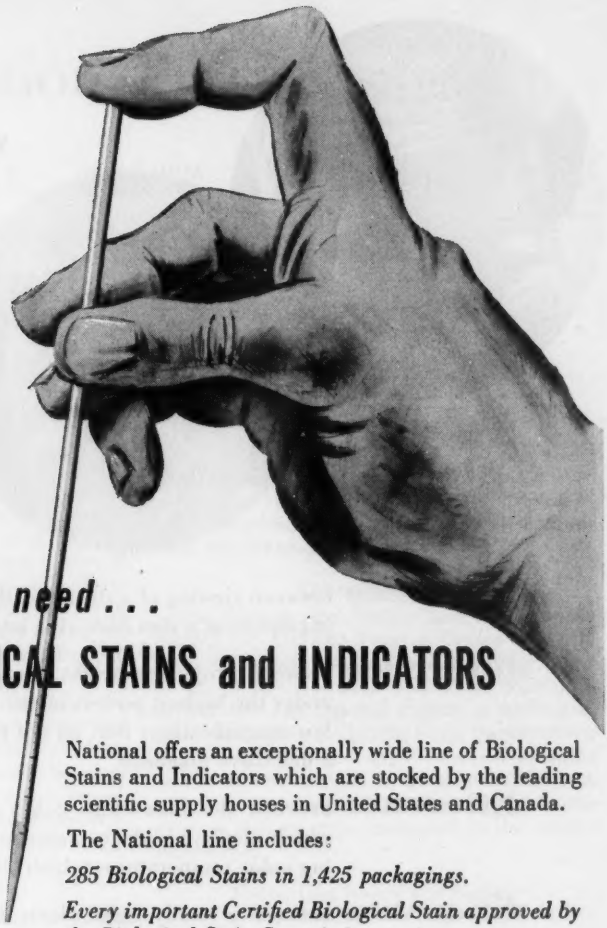

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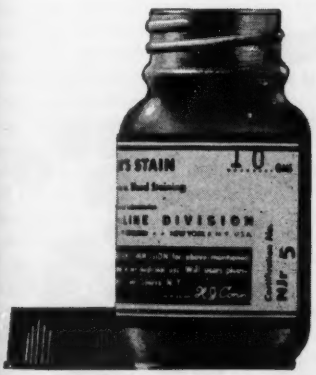

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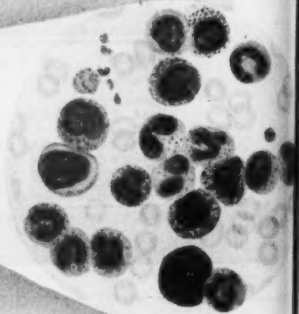

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Federation Proceedings

VOLUME 15 *March 1956* NUMBER 1, PART II

FORTIETH ANNUAL MEETING

ATLANTIC CITY, NEW JERSEY, APRIL 16–20, 1956

General Information

Registration

REGISTRATION DESKS will be located in the Lobby of Convention Hall and will be open Sunday, April 15, at 9:00 A. M., remaining open until 9:00 P. M. on that day. On Monday, April 16, registration desks will be open from 8:00 A. M. to 9:00 P. M. Tuesday through Friday, April 16–20, the desks will be open from 8:00 A. M. to 5:00 P. M. The registration fee will be $5.00.

There will be separate registration desks for non-professional guests who do not wish to attend scientific sessions, and for industrial exhibitors and press representatives. *The official badge issued at the registration desks must be worn to secure admission to scientific sessions and other activities of the Federation.*

Headquarters Hotel

Haddon Hall will be headquarters for all six societies.

Scientific Sessions

Scientific sessions will be held in Convention Hall, the Ritz-Carlton, Marlborough-Blenheim, and Dennis Hotels, from 1:15 P. M. Monday, April 16, through 4:00 P. M. Friday, April 20. Seventeen intersociety sessions on the topics of Radiation Biology, Atherosclerosis, Blood Clotting, Cholinesterase, and Tumors and an intersociety symposium on Irradiated Foods are scheduled throughout the week. (See pages 629–641 for complete programs.) The Motion Picture Session will be Monday, April 16, at 8:00 P. M. in the Ballroom of Convention Hall.

The Joint Session of the Federation will be Tuesday, April 16, at 8:00 P. M. in the Ballroom of Convention Hall. Dr. George R. Cowgill, Chairman of the Federation Board, will preside; the program will be concerned with the clinical, biochemical and dietary aspects of nutrition and cardiovascular disease.

Copies of FEDERATION PROCEEDINGS, March 1956 (Part I, Abstracts, Part II, Program) will be on sale near the registration desks in the Lobby of Convention Hall. The abstracts are priced at $5.00 and the program at $1.00.

Other Meetings

The Histochemical Society and the American Society for Artificial Internal Organs will hold scientific sessions on Sunday and Monday, April 15 and 16, in Convention Hall. Those desiring to attend these meetings may register at the Federation Registration Desks; the badge issued entitles the bearer to attend any Federation scientific session as well as those of the above societies. A listing of the time and location of the scientific sessions of these societies appears in the double-page spread.

Federation Board and Society Council Meetings

Meetings of the Councils of the six member societies and of the Federation Board, as well as those of other special committees and editorial boards, will begin on Sunday, April 15. A listing of these meetings is in the program, double-page spread.

Exhibits

Exhibits by publishers, scientific equipment, pharmaceutical, chemical and food manufacturers, non-profit institutions, and members of the Federated Societies will be intermingled in the Main Arena of Convention Hall. A list of exhibitors, with a brief description of displays, a floor plan of space locations, and inspection hours will be found on pages 751–763.

Placement Service

The office of the Placement Service will be located in the Main Arena of Convention Hall and will open for candidate registration at 1:00 P. M. Sunday, April 15. Registration of employers will

begin Monday, April 16, at 8:15 A. M. The office will be open from 8:15 A. M. to 5:00 P. M. Monday through Thursday and from 8:15 A. M. to 1:00 P. M. Friday. The Bulletin Board Room will be open until 6:00 P. M. Monday through Thursday. Applicants are requested to register Sunday afternoon or Monday; employers on Monday and Tuesday. Interviews will be scheduled Tuesday to Friday during the above hours. Advance applications can be accepted at the Washington office of the Placement Service, 9650 Wisconsin Ave., until March 30. Applicants who are already registered with the Service should notify the Washington office by March 30 if they anticipate using the facilities at Atlantic City.

Employers who wish to use the interview facilities at Atlantic City must be annual subscribers to the Placement Service Bulletin or to the single February List of Candidates. Identification forms were mailed to such subscribers before March 15. If these are properly completed and returned to the Washington office before March 30, the cards identifying the authorized users of each subscription will be awaiting them at the Employers' Registration Desk. Compliance with this routine will greatly expedite the employers' registration procedures.

Press Room

The Press Room will be located in Room 9 of Convention Hall. The office will be open after 1:00 P. M. Sunday, April 15. Dr. John O. Hutchens, Chairman of the Federation Public Information Committee, has arranged to have members of the Committee and a staff available to assist press representatives to secure releases and to schedule press conferences.

Federation Office

The Federation Office will be located in Room 8 on the Ballroom level of Convention Hall.

Special Functions

Society dinners, special scientific dinner meetings, group luncheons and breakfasts, and other informal functions which have been scheduled through the Federation Office are listed in the double-page spread in the program. Tickets will be on sale in the Lobby of Convention Hall.

Ladies Hospitality Committee

A hospitality committee, headed by Mrs. Karl Habel, will have a desk in the registration area of the Lobby of Convention Hall. A schedule of activities planned for registered guests of the Federation during the week of the Meetings appears on page 764. It will facilitate reservations for transportation and refreshments if those desiring to participate in these activities will contact Mrs. Habel, 9650 Wisconsin Avenue, Washington 14, D.C., before the Meetings.

Message Center

A message center will be located in the Lobby of Convention Hall for distribution of mail and exchange of personal messages. A visible index of registrants will be available near the message and information desk.

Lost and Found

Any articles left in session rooms at the close of each day will be forwarded to the Federation Office. Owners of lost property should call at this office. A report to the Federation Office of any articles found during the meetings will be appreciated.

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Federation Program

JOINT SESSION OF THE FEDERATION

TUESDAY, APRIL 17, 8:00 P.M.—BALLROOM, CONVENTION HALL

Chairman: GEORGE R. COWGILL

TOPIC: *Nutrition and Cardiovascular Disease*

Clinical Aspects. LOUIS N. KATZ. *Michael Reese Hospital, Chicago, Illinois*
Biochemical Aspects. CHRISTIAN B. ANFINSEN, JR. *National Heart Institute, Bethesda, Maryland*
Dietary Aspects. FREDRICK J. STARE. *Department of Nutrition, Harvard University, Boston, Massachusetts*

MOTION PICTURES

MONDAY, APRIL 16, 8:00 P.M.—BALLROOM, CONVENTION HALL

Chairman: C. R. TREADWELL

Modern concepts of thymic physiology. VAUGHN P. SIMMONS (introduced by H. BECKMAN). *Marquette Univ. School of Medicine, Milwaukee, Wis.* (Pharmacol.)

Polydipsia evoked by hypothalamic stimulation in the goat. B. ANDERSSON* and S. M. MCCANN. *Kungl. Veterinarhogskoln, Stockholm, Sweden.* (Physiol.)

Platelets in the peripheral circulation of the hamster (Mesocricetus auratus). HERBERT J. BERMAN,* GEORGE P. FULTON and BRENTON R. LUTZ. *Boston Univ., Boston, Mass.* (Physiol.)

Microscopic observations of the acute effects of anti-red cell sera on the extra- and intrahepatic circulation. EDWARD H. BLOCH and CARLO PIOVELLA (introduced by I. H. LEPOW). *Western Reserve Univ., Cleveland, Ohio.* (Immunol.)

Effect of chlorin derivative on the perfused hypodynamic frog heart. L. H. JODREY, M. J. HENDRICKSON and R. R. BERUEFFY (introduced by A. R. MCINTYRE). *Univ. of Nebraska College of Medicine, Omaha.* (Pharmacol.)

Effect of meprobamate (Miltown) on animal behavior. FRANK M. BERGER, CHARLES D. HENDLEY and THOMAS E. LYNES.* *Wallace Labs., New Brunswick, N. J.* (Pharmacol.)

An asterisk * following an author's name indicates "by invitation."

INTER-SOCIETY SESSIONS

ATLANTIC CITY, APRIL 16–20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 16, 1:15 p.m.

Atherosclerosis I

MONDAY, 1:15 P.M.—CONVENTION HALL, BALLROOM

Chairman: Russell Holman

1:15 **1.** Natural history of aortic atherosclerosis, ages 1 to 40. JACK P. STRONG,* HENRY C. MCGILL, JR., OSCAR R. GRIFFIN* AND RUSSELL L. HOLMAN. *Louisiana State Univ. School of Medicine and Charity Hosp. of Louisiana.* (Pathol.)

1:30 **2.** Absorption of dietary cholesterol in man. T. M. LIN, ESKO KARVINEN AND A. C. IVY (intr. by E. RHODA GRANT). *Univ. of Illinois School of Medicine.* (Physiol.)

1:45 **3.** Serum cholesterol in subjects on reducing diets high and low in fat. JOSEPH T. ANDERSON, HENRY LONGSTREET TAYLOR AND ANCEL KEYS. *Univ. of Minnesota.* (Nutr.)

2:00 **4.** Depression of plasma cholesterol in human subjects consuming butter containing soy sterols. D. W. PETERSON, C. W. NICHOLS, JR., N. F. PEEK AND I. L. CHAIKOFF (intr. by C. R. GRAU). *Univ. of California, College of Agriculture and School of Medicine.* (Nutr.)

2:15 **5.** Dietary fatty acids and cholesterol excretion in the rat. K. K. CARROLL AND R. L. NOBLE (intr. by J. B. COLLIP). *Collip Med. Research Lab.* (Physiol.)

2:30 **6.** Xanthomatosis and atherosclerosis produced in a rhesus monkey. GEORGE V. MANN AND STEPHEN B. ANDRUS.* *Harvard School of Public Health.* (Nutr.)

2:45 **7.** Level and type dietary fat and experimental hypercholesteremia in cebus monkey. O. W. PORTMAN,* F. J. STARE AND D. BRUNO.* *Harvard School of Public Health.* (Nutr.)

3:00 **8.** Early histologic changes in experimental atherosclerosis. S. B. ANDRUS,* G. V. MANN, L. C. FILLIO* AND F. J. STARE. *Harvard School of Public Health.* (Nutr.)

3:15 **9.** Lipid patterns and atherogenesis in cholesterol-fed chickens. DAVID M. TENNENT,* HENRY SIEGEL,* GUNTHER KURON,* WALTER H. OTT AND CHARLES W. MUSHETT. *Merck Inst. for Therapeutic Research and Albert Einstein College of Med.* (Nutr.)

3:30 **10.** Experimental atherosclerosis in the rat. L. C. FILLIOS,* S. B. ANDRUS,* G. V. MANN AND F. J. STARE. *Harvard School of Public Health.* (Nutr.)

3:45 **11.** Comparative effect of cottonseed oil and lard on cholesterol metabolism in the rat. LILLA AFTERGOOD,* ROSLYN B. ALFIN-SLATER AND HARRY J. DEUEL, JR. *Univ. of Southern California School of Med.* (Nutr.)

4:00 **12.** Role of arterial and renal injury in production of atheromatous lesions in coronary arteries of the rat under various dietary conditions. ROBERT W. WISSLER, ROBERT F. ALLEN,* RICHARD H. MOY* AND WILLIAM L. BRADFORD.* *Univ. of Chicago.* (Pathol.)

Tumors I: Nutrition-Metabolism

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM 21

Chairman: Van R. Potter

1:15 **13.** Withdrawn.

1:30 **14.** Transplantation of cholangiofibrosis lesion from liver of chronic choline-deficient rat. D. H. COPELAND,* W. D. SALMON AND M. J. BURNS.* *Alabama Polytechnic Inst.* (Nutr.)

1:45 **15.** Effect of choline chloride on the response of chicks to a transplantable tumor (RPL-12). C. H. HILL, H. W. GARREN (intr. by G. H. WISE). *North Carolina State College.* (Nutr.)

2:00 **16.** Deoxyribosidic compounds in liver and hepatoma. WALTER C. SCHNEIDER AND LEONA W. BROWNELL.* *Natl. Insts. of Health.* (Biochem.)

2:15 **17.** Heterologous transplantation of leukemic cells. M. K. DAGG* AND JOSEPH H. BURCHENAL. *Sloan-Kettering Inst. and Cornell Univ. Med. College.* (Nutr.)

2:30 **18.** Amino acid requirements of Walker 256 carcinosarcoma in vitro. THOMAS A. MCCOY AND ROBERT E. NEUMAN (intr. by SIMON H. WENDER). *Samuel Roberts Noble Fndn., Inc., Ardmore, Okla.* (Biochem.)

2:45 **19.** Effect of secretin and mecholyl on excretion of urinary lipase in man. MARTIN M. NOTHMAN, JOSEPH H. PRATT AND ALLAN D. CALLOW.* *New England Ctr. Hosp. and Tufts Univ. Med. School.* (Pharmacol.)

3:00 **20.** Synthesis and incorporation of P^{32} in irradiated Ehrlich ascites cells. LOLA S. KELLY (intr. by H. B. JONES). *Donner Labs., Univ. of California.* (Physiol.)

3:15 **21.** Phosphate content of Ehrlich's ascites tumor cells and its importance in metabolism. KENNETH IBSEN,* BARBARA MCCARTY* AND RALPH W. MCKEE. *Univ. of California Med. Ctr., Los Angeles.* (Biochem.)

3:30 **22.** Biochemical study of HeLa cells. HOWARD GOLDFINE,* RAY KOPPELMAN* AND E. A. EVANS, JR. *Univ. of Chicago.* (Biochem.)

Modifications of Radio-Sensitivity

MONDAY, 1:15 P.M.—DENNIS, GARDEN LOUNGE

Chairman: A. K. Solomon

1:15 **23.** Increased x-irradiation sensitivity induced in rats by development of resistance to trauma. JOHN K. HAMPTON, JR. AND JOHN W. MANNING, JR.* *Tulane Univ. School of Medicine.* (Physiol.)

1:30 **24.** Effect of somatotrophic hormone and chlortetracycline on weight and mortality of irradiated rats. J. M. B. BLOODWORTH, JR., PHYLLIS ARSCOTT, GEORGE J. HAMWI AND JOSEPH L. MORTON (intr. by E. VON HAAM.) *Ohio State Univ. College of Medicine.* (Pathol.)

1:45 **25.** Rate of recovery of rats and mice exposed to x-rays. PAUL R. SALERNO. *Western Reserve Univ.* (Pharmacol.)

2:00 **26.** Effect of cell-free spleen extracts on x-ray mortality of mice. FRIEDRICH ELLINGER. *Naval Med. Research Inst.* (Pharmacol.)

2:15 **27.** Effect of decreased barometric pressure on radiation lethality in rats. JOHN DOULL. *Univ. of Chicago.* (Pharmacol.)

2:30 **28.** Some effects of protraction and fractionation of dose of Co^{60} gamma radiation on 30-day mortality in the mouse. HOWARD H. VOGEL, JR., JOHN W. CLARK AND DONN L. JORDAN (intr. by AUSTIN M. BRUES). *Argonne Natl. Lab.* (Physiol.)

2:45 **29.** Alterations in iron uptake as a function of radiation dose rate. SIEGMUND J. BAUM AND DONALD J. KIMELDORF (intr. by R. W. BRAUER). *U.S. Naval Radiological Defense Lab.* (Pharmacol.)

3:00 **30.** Effects of combined exposure to strontium^{90} and external radiation. W. L. MILNE AND S. H. COHN (intr. by GEORGE C. COTZIAS). *U.S. Naval Radiological Defense Lab.* (Pathol.)

3:15 **31.** Early mortality in rats given supralethal whole body x-irradiation and the protective effect of fasting. S. T. TAKETA AND M. N. SWIFT (intr. by FRANK W. WEYMOUTH). *U.S. Naval Radiological Lab.* (Physiol.)

3:30 **32.** Effect of fractionation of dose of x-radiation upon recovery of the rat small bowel epithelium. R. BLAND WILLIAMS, JR., JULIUS WHITE* AND JANE N. TOAL.* *Naval Med. Research Inst. and Natl. Cancer Inst.* (Pathol.)

3:45 **33.** Influence of 'time factor' in radiation effects on biological systems. ANNA GOLDFEDER AND GRACE E. CLARK.* *New York Univ.* (Physiol.)

Tuesday Morning, April 17, 9:00 a.m.

Blood Clotting I

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM B

Chairman: Walter H. Seegers

9:00 **34.** Relation between platelet metabolism and platelet integrity. J. L. KOPPEL AND JOHN H. OLWIN (intr. by DOUGLAS A. MACFADYEN). *Presbyterian Hosp., Chicago.* (Biochem.)

9:15 **35.** Erythrocytin, a clotting factor from erythrocytes. CLARA V. HUSSEY AND MARGARET M. KASER (intr. by JOSEPH C. BOCK). *Marquette Univ. and VA Hosp., Milwaukee.* (Biochem.)

9:30 **36.** Changes in blood clotting mechanism of cold adapted rabbits. G. BONAR SUTHERLAND (intr. by A. VAN HARREVALD). *California Inst. of Technology.* (Physiol.)

9:45 **37.** Thromboplastic cell component of human blood. GEORGE Y. SHINOWARA. *Ohio State Univ. College of Medicine.* (Biochem.)

10:00 **38.** Complex of prothrombin conversion factors. F. D. MANN. *Palo Alto Hosp.* (Pathol.)

10:15 **39.** The TAMe assay for routine determination of plasma prothrombin. PHYLLIS M. ARSCOTT, J. L. KOPPEL AND JOHN H. OLWIN (intr. by CECIL A. KRAKOWER). *Presbyterian Hosp., Chicago.* (Pathol.)

10:30 **40.** Interrelationships between prothrombin and certain derivatives of prothrombin. WALTER H. SEEGERS, SHIRLEY A. JOHNSON* AND NORMA ALKJAERSIG.* *Wayne Univ. College of Medicine.* (Biochem.)

10:45 **41.** Thrombin formation. H. JENSEN AND ARNOLD B. TEIN.* *Army Med. Research Lab.* (Biochem.)

11:00 **42.** Dissociation of purified prothrombin. FRANCOIS LAMY (intr. by KARL SCHMID). *Massachusetts Inst. of Technology.* (Biochem.)

11:15 **43.** Resting turnover rate of prothrombin. P. V. HARPER,* ELLEN CALVARY* AND J. GARROTT ALLEN. *Univ. of Chicago.* (Physiol.)

11:30 **44.** Effect of K vitamins on prothrombin and proconvertin levels of cholecystnephrostomized dogs. G. J. MILLAR,* L. FISHER* AND L. B. JAQUES. *Univ. of Saskatchewan.* (Physiol.)

11:45 **45.** Thromboplastin generation: analysis with thromboplastinase. S. GOLLUB, ALEX W. ULIN AND J. BLACK (intr. by M. E. MAXFIELD). *Hahnemann Med. College.* (Physiol.)

Tumors II: Metabolism

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM C

Chairman: Harold P. Morris

9:00 **46.** Methyl group synthesis in leukemia susceptible mice fed a folic acid deficient diet and in leukemic mice fed a normal diet. M. TOPOREK* AND F. H. BETHELL. *Simpson Memorial Inst., Univ. of Michigan.* (Pathol.)

9:15 **47.** Metabolism of mice bearing ACTH-secreting tumors. CLAIRE ZOMZELY,* KENNETH H. SHULL* AND J. MAYER. *Harvard School of Public Health.* (Physiol.)

9:30 **48.** In vitro incorporation of C^{14} formate into nucleotides of normal and leukemic human leukocytes. WARREN WELLS* AND RICHARD J. WINZLER. *Univ. of Illinois College of Medicine.* (Biochem.)

9:45 **49.** Protein metabolism in Ehrlich's mouse ascites carcinoma cells. KIVIE MOLDAVE (intr. by MARIA SERAYDARIAN). *Tufts Univ. School of Medicine.* (Physiol.)

10:00 **50.** Tumor lipogenesis in vitro. R. W. BEGG AND J. A. TREW.* *Univ. of Western Ontario.* (Biochem.)

10:15 **51.** Incorporation of formate-C^{14} into nucleic acids of Ehrlich ascites tumor cells. HELEN HARRINGTON* AND PAUL S. LAVIK. *Western Reserve Univ. Atomic Energy Project.* (Biochem.)

10:30 **52.** Metabolism of uracil in normal and neoplastic tissues. CHARLES HEIDELBERGER AND EBERHARD HARBERS.* *McArdle Memorial Lab., Univ. of Wisconsin Med. School.* (Biochem.)

10:45 **53.** Renewal of acid-soluble purines and nucleic acid purines in tumor-bearing mice studied with sodium formate-C^{14}. L. L. BENNETT, JR.* AND HOWARD E. SKIPPER. *Kettering-Meyer Lab., Southern Research Inst., Birmingham.* (Biochem.)

11:00 **54.** Tricarboxylic acid cycle in mammalian carcinoma cell. STANLEY BARBAN AND H. O. SCHULZE (intr. by E. A. PETERSON). *Natl. Insts. of Health.* (Biochem.)

11:15 **55.** Anaerobic carbon dioxide production from bicarbonate with sugar utilization in homogenates of transplanted tumors. MOIRA DAVISON REYNOLDS, EUGENE L. BELLIN, HENRY M. LEMON AND MARY LOUISE TURNER (intr. by J. M. LOONEY). *Boston Univ. School of Medicine.* (Biochem.)

11:30 **56.** Glycolysis in growing and spontaneously regressing Flexner-Jobling carcinoma. P. J. FODOR, P. TOMASHEFSKY* AND C. FUNK. *New York Med. College and Funk Fndn. for Med. Research.* (Biochem.)

Atherosclerosis II

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM D

Chairman: George V. Mann

9:00 **57.** Stimulation of arterial phosphatide synthesis in rabbit atheromatosis. D. B. ZILVERSMIT AND E. L. MCCANDLESS.* *Univ. of Tennessee.* (Physiol.)

9:15 **58.** Lipid-metabolic alterations associated with cortisone-induced regression of cholesterol atherosclerosis in rabbits. ABRAHAM DURY. *Dorn Lab. of Med. Research.* (Physiol.)

9:30 **59.** Effect of gonadectomy on growth and cholesterol metabolism in rats. RICHARD D. COLEMAN,* YUMIN CHEN,* ROSLYN B. ALFIN-SLATER AND HARRY J. DEUEL, JR. *Univ. of Southern California School of Medicine.* (Biochem.)

9:45 **60.** Effects of controlled exercise on experimental atherosclerosis in androgen-treated chicks. HARRY Y. C. WONG, ROBERT L. SIMMONS AND EDWARD W. HAWTHORNE (intr. by JOSEPH L. JOHNSON). *Howard Univ. College of Medicine.* (Physiol.)

10:00 **61.** Food intake and sex hormone effects on serum and liver cholesterol. RUTH OKEY AND MARIAN M. LYMAN.* *Univ. of California.* (Nutr.)

10:15 **62.** Epinephrine arteriopathy and thyroidectomy. A. P. ROSZKOWSKI* AND Y. T. OESTER. *Stritch School of Medicine, Loyola Univ.* (Pharmacol.)

10:30 **63.** Progesterone and alpha tocopherol in experimental epinephrine-thyroxine arteriosclerosis and in cholesterol-induced atherosclerosis. Y. T. OESTER, OSCAR F. DAVIS* AND BERNARD FRIEDMAN.* *Stritch School of Medicine, Loyola Univ.* (Pharmacol.)

10:45 **64.** Interrelationship of thymus and steroid hormones in production of experimental cardiovascular necrosis. CONSTANCE MARTIN* AND DAVID LEHR. *New York Med. College, Flower and Fifth Ave. Hosp.* (Pharmacol.)

11:00 **65.** Hormonal influences on arterial medionecrosis. DAVID LEHR, CONSTANCE MARTIN* AND ROBERT MILORA.* *New York Med. College, Flower and Fifth Ave. Hosp.* (Pharmacol.)

11:15 **66.** Influence of methyl testosterone and of *dl*-ethionine on canine liver lipids and serum lipids and lipoproteins. ROBERT H. FURMAN, LEONARD N. NORCIA, CHARLES W. ROBINSON AND I. ERNEST GONZALEZ (intr. by MAX N. HUFFMAN). *Oklahoma Med. Research Fndn.* (Biochem.)

11:30 **67.** Arteriosclerosis in pyridoxine-deficient monkeys and dogs. CHARLES W. MUSHETT AND GLADYS A. EMERSON.* *Merck Inst. for Therapeutic Research.* (Pathol.)

11:45 **68.** Microscopic study of integrated patterns of vascular and extravascular disease due to hypervitaminosis D. RICHARD TRUEHEART,* MARJORIE STUMPE,* GEORGE HASS AND C. BRUCE TAYLOR. *Rush Lab. of Pathology, Presbyterian Hosp., Chicago.* (Pathol.)

Radiation: Effects on Enzymes and on Liver

TUESDAY, 9:00 A.M.—DENNIS, GARDEN LOUNGE

Chairman: R. W. Brauer

9:00 **69.** Immediate effect of x-rays on the DPN-DPNH relationship in grasshopper eggs. THEODORE N. TAHMISIAN AND BETTI JEAN WRIGHT.* *Argonne Natl. Lab.* (Physiol.)

9:15 **70.** Chemical and nutritional recovery from an x-ray induced block in deoxyribonucleic acid synthesis. C. O. DOUDNEY (intr. by STUART MUDD). *Univ. of Pennsylvania.* (Physiol.)

9:30 **71.** Release of free deoxypolynucleotide in spleen after systemic x-irradiation. L. J. COLE AND M. E. ELLIS (intr. by R. W. BRAUER). *U.S. Naval Radiological Defense Lab.* (Pharmacol.)

9:45 **72.** Effect of x-irradiation of mice on thymic nucleodepolymerase. PATRICIA P. WEYMOUTH (intr. by NORTON NELSON). *Clarkson College of Tech.* (Biochem.)

10:00 **73.** Enhancement of proteolysis as a mode of lethal action of ionizing radiation. C. C. LUSHBAUGH, L. B. HUGHES* AND D. B. HALE.* *Los Alamos Scientific Lab.* (Pathol.)

10:15 **74.** Effects of fractionated whole-body x-irradiation on phosphatase activity. DONALD F. PETERSEN* AND KENNETH P. DUBOIS. *U.S.A.F. Radiation Lab. and Univ. of Chicago.* (Pharmacol.)

10:30 **75.** Some factors involved in response of phosphatases of hematopoietic tissues to x-irradiation. EDWIN M. UYEKI* AND PAUL R. SALERNO. *Western Reserve Univ.* (Pharmacol.)

10:45 **76.** Metabolism of C^{14}-formate by spleen breis from normal and x-irradiated rats. D. A. RAPPOPORT,* R. A. SEIBERT AND V. P. COLLINS.* *Baylor Univ. College of Medicine.* (Pharmacol.)

11:00 **77.** Biochemical changes in blood and liver of rats following x-irradiation or nitrogen mustard treatment. WILLIAM H. GOLDWATER AND CECIL ENTENMAN (intr. by LESLIE L. BENNETT). *U.S. Naval Radiological Defense Lab. and Univ. of California.* (Physiol.)

11:15 **78.** Blood sugar and liver glycogen levels in irradiated and nonirradiated mice. F. G. SHERMAN AND F. M. DWYER.* *Brookhaven Natl. Lab. and Brown Univ.* (Physiol.)

11:30 **79.** Resistance of coenzyme A to radiation. J. W. GARDELLA AND E. J. LICHTLER (intr. by J. C. AUB). *Harvard Univ.* (Physiol.)

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 8 of Convention Hall, where owners may claim them on proper identification.

Tuesday Afternoon, April 17, 1:15 p.m.

Atherosclerosis III

TUESDAY, 1:15 P.M.—CONVENTION HALL, BALLROOM

Chairman: Irvine H. Page

1:15 **80.** Serum lipoprotein and cholesterol changes in nephrectomized dogs maintained by peritoneal dialysis. LENA A. LEWIS, WILLEM J. KOLFF* AND IRVINE H. PAGE. *Cleveland Clinic Fndn. and Frank E. Bunts Educational Inst.* (Physiol.)

1:30 **81.** Lipid synthesis by in vitro perfused aorta and its perfusate. J. WILFRID HAHN AND MELVIN A. NYMAN (intr. by N. T. WERTHESSEN). *Southwest Fndn. for Research and Education.* (Physiol.)

1:45 **82.** Effects of β-sitosterol on development and regression of cholesterol atherosclerosis in rabbits. W. T. BEHER, W. L. ANTHONY* AND G. D. BAKER.* *Edsel B. Ford Inst. for Med. Research.* (Biochem.)

2:00 **83.** Influence of hesperidin methyl chalcone on experimental steroid hypertension. E. SALGADO* AND D. M. GREEN. *Nepera Chemical Co.* (Pharmacol.)

2:15 **84.** Specificity of peptide moieties of the lipoproteins of human plasma. DAVID GITLIN,* DAVID G. CORNWELL* AND J. L. ONCLEY. *Harvard Med. School and Children's Med. Ctr., Boston.* (Biochem.)

2:30 **85.** Effect of triton WR-1339 on lipoprotein lipase activity of rat plasma. MICHAEL C. SCHOTZ AND A. SCANU (intr. by E. HAAS). *Cleveland Clinic Fndn. and Frank E. Bunts Educational Inst.* (Biochem.)

2:45 **86.** Effect of heparin, protamine, alimentary lipemia and fasting on plasma unesterified fatty-acid level. JOHN J. SPITZER AND HARVEY I. MILLER.* *N. Y. State Dept. of Health.* (Physiol.)

3:00 **87.** Relation of clearing factor inhibitors to hyperlipemia. JOSEPH SEIFTER AND DAVID H. BAEDER.* *Wyeth Inst. for Med. Research.* (Pharmacol.)

3:15 **88.** Effect of mucopolysaccharides on lipemia clearing reaction. DAVID H. BAEDER,* BERNARD SHORE,* JOHN W. GOFMAN* AND JOSEPH SEIFTER. *Wyeth Inst. for Med. Research and Univ. of California.* (Pharmacol.)

3:30 **89.** Purification of lipemia clearing factor of postheparin plasma. CHARLOTTE HOLLETT* AND H. C. MENG. *Vanderbilt Univ. Med. School.* (Physiol.)

3:45 **90.** Isolation of an elastase fraction from malt diastase. IRVING ONESON, FRANCES DECIBUS, GEOFFERY LORD AND ALFRED BLOCH (intr. by WALTON VAN WINKLE). *Ethicon, Inc.* (Pharmacol.)

4:00 **91.** Hexosamine concentration in normal and atheromatous human aortic connective tissue. NANCY L. NOBLE, ROBERT J. BOUCEK, KUNG-YING T. KAO AND HELEN C. PARTIN (intr. by RALPH JONES, JR.). *Miami Heart Inst., Univ. of Miami School of Medicine.* (Pharmacol.)

Tumors III: Carcinogens-Anticarcinogens

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 11

Chairman: Jacob Furth

1:15 **92.** Partial purification and preliminary analyses of certain soluble azoproteins from livers of rats fed 3′-methyl-4-dimethylaminoazobenzene. SAM SOROF, MARILYN G. OTT* AND EMILY M. YOUNG.* *Lankenau Hosp. Research Inst. and Inst. for Cancer Research.* (Biochem.)

1:30 **93.** Effect of benzimidazoles and structurally related compounds on azo dye destruction by liver homogenates. C. C. CLAYTON (intr. by J. C. FORBES). *Med. College of Virginia.* (Biochem.)

1:45 **94.** Metabolism of fluorene derivatives by rat liver slices. HELMUT R. GUTMANN, JOHN H. PETERS* AND HERBERT T. NAGASAWA.* *VA Hosp. and Univ. of Minnesota.* (Biochem.)

2:00 **95.** Protection against teratogenic action of azaserine and DON. C. P. DAGG AND D. A. KARNOFSKY (intr. by C. C. STOCK). *Sloan-Kettering Inst. for Cancer Research.* (Biochem.)

2:15 **96.** Microbial studies of 6-azauracil, an inhibitor of uracil. R. E. HANDSCHUMACHER* AND ARNOLD D. WELCH. *Yale Univ.* (Biochem.)

2:30 **97.** Antimetabolite activity of 6-aminonicotinamide. WILLARD J. JOHNSON AND J. D. MCCOLL (intr. by O. F. DENSTEDT). *Research Labs., Frank W. Horner, Ltd., Montreal.* (Biochem.)

2:45 **98.** Derivatives of 2-amino-1,3,4-thiadiazole as niacin antagonists. W. P. Troy,* A. S. Sloboda,* S. L. Halliday* and J. J. Oleson. *American Cyanamid Co., Lederle Labs.* (Biochem.)

3:00 **99.** Differential metabolic and necrotizing responses of tumors to podophyllin and colchicine derivatives. Mark Woods and Dean Burk. *Natl. Cancer Inst.* (Biochem.)

3:15 **100.** Antibiotics as sources of anticarcinogens. John B. Field, Doris A. Filler,* Louis T. Bascoy,* Francoise Costa* and Angela Boryczka.* *Univ. of Southern California School of Medicine and Los Angeles County Hosp.* (Biochem.)

Radiation: Physiological Effects I

Tuesday, 1:15 p.m.—Dennis, Garden Lounge

Chairman: H. A. Blair

1:15 **101.** Effect of low-level x-irradiation on the in vitro oxygen consumption of amphiuma erythrocytes. R. C. Grubbs, M. A. Lessler and W. S. Martin.* *Ohio State Univ. College of Medicine.* (Physiol.)

1:30 **102.** Radiation-induced changes in fibrinogen solutions. Peter Rieser and Robert J. Rutman.* *Univ. of Pennsylvania.* (Physiol.)

1:45 **103.** Abdominal receptor site for emetic action of x-radiation. H. L. Borison. *Univ. of Utah College of Medicine.* (Physiol.)

2:00 **104.** Changes in cardiovascular system following total body x-irradiation. W. D. Armstrong and W. O. Caster.* *Univ. of Minnesota.* (Physiol.)

2:15 **105.** Effect of head x-irradiation in rabbits on aortic blood pressure, brain water content and cerebral histology. Herbert B. Gerstner, Phillips M. Brooks and F. Stephen Vogel (intr. by R. W. Bancroft). *U.S.A.F. School of Aviation Med.* (Physiol.)

2:30 **106.** Effect of heavy particles from B^{10} (n, α) Li^7 reaction on acute mortality in the mouse. V. P. Bond and O. D. Easterday (intr. by E. P. Cronkite). *Brookhaven Natl. Lab.* (Physiol.)

2:45 **107.** Uptake, distribution and excretion of fission products in tissues of mice exposed to a simulant of fall-out from nuclear detonation. S. H. Cohn, W. B. Lane, J. K. Gong, J. C. Sherwin, R. K. Fuller, L. L. Wiltshire and W. L. Milne (intr. by R. W. Brauer). *U.S. Naval Radiological Defense Lab.* (Pharmacol.)

3:00 **108.** Simultaneous radioassay of compounds containing tritium and carbon-14 using a liquid scintillation counter. George T. Okita, Jon J. Kabara and George V. LeRoy (intr. by E. M. K. Geiling). *Argonne Cancer Research Hosp. and Univ. of Chicago.* (Pharmacol.)

3:15 **109.** Radioyttrium with complex heterogeneous carrier. Granvil C. Kyker, John Rafter,* Edgar A. Cress* and Nelson Stevens.* *Oak Ridge Inst.* (Biochem.)

3:30 **110.** Radiostrontium metabolism in man. Herta Spencer, Eva Berger and Daniel Laszlo (intr. by Eugene Y. Berger). *Montefiore Hosp., New York City* (Physiol.)

3:45 **111.** Synergistic action on growth of Neurospora crassa of pyrimidines following irradiation and reconstitution. Attilio Canzanelli, Rhea Sossen* and David Rapport. *Tufts Univ. School of Medicine.* (Physiol.)

4:00 **111a.** Production of skin lesions in swine by the B^{10} (n, α) Li^7 reaction. J. S. Robertson, V. P. Bond,* E. P. Cronkite and O. D. Easterday.* *Brookhaven Natl. Lab.*

Wednesday Morning, April 18, 9:00 a.m.

Blood Clotting II

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 6

Chairman: John H. Ferguson

9:00 **112.** Physico-chemical studies of p-tolyl azo fibrinogen. JOHN E. FITZGERALD AND WALTER L. KOLTUN (intr. by ALFRED CHANUTIN). *School of Medicine, Univ. of Virginia.* (Biochem.)

9:15 **113.** Selective adsorption of anti-hemophilic factor (AHF) and fibrinogen from canine plasma. ROBERT H. WAGNER,* J. G. MCALLISTER III* AND K. M. BRINKHOUS. *Univ. of North Carolina.* (Pathol.)

9:30 **114.** Fibrinogen polymerization test. BRUNO W. VOLK AND SAMUEL LOSNER.* *Jewish Chronic Disease Hosp., Brooklyn.* (Pathol.)

9:45 **115.** Microassay for fibrinogen used for serial determinations following stress. H. D. WYCOFF, JULIA AGEE AND JANIS PARSONS (intr. by W. KNOWLTON HALL). *Med. College of Georgia.* (Biochem.)

10:00 **116.** Retractin: clot retraction promoting factor in platelets and tissues. S. I. MAGALINI* AND M. STEFANINI. *Saint Elizabeth's Hosp. and Tufts Univ. Med. School.* (Physiol.)

10:15 **117.** Methylcellulose as a wetting agent in blood clot. MORRIS ROSENFELD. *Johns Hopkins Univ. School of Medicine.* (Pharmacol.)

10:30 **118.** Alterations in fibrinolytic and coagulation systems of dogs in peptone shock. SAMUEL N. KOLMEN, M. MASON GUEST AND D. R. CELANDER (intr. by ANDREW A. ORMSBY). *Univ. of Texas Med. Branch.* (Biochem.)

10:45 **119.** Bovine antifibrinolysin. EDWIN T. MERTZ, RALPH EILBERG* AND ARTHUR DALBY.* *Purdue Univ.* (Biochem.)

11:00 **120.** Assays of plasmin, human activator-enzyme and plasmin inhibitors. PHILIP S. NORMAN (intr. by MERRILL W. CHASE). *Rockefeller Inst. for Med. Research.* (Immunol.)

11:15 **121.** Factors in activation of plasminogen by streptokinase. JAMES W. BASTIAN AND R. G. HILL (intr. by N. ERCOLI). *Armour Labs., Chicago.* (Pharmacol.)

11:30 **122.** Effect of delayed treatment with plasmin (fibrinolysin) on thrombi produced with I^{131}-labeled fibrinogen. N. BACK,* J. L. AMBRUS, J. W. BYRON* AND S. SHULMAN. *Univ. of Buffalo Med. School and Roswell Park Memorial Inst.* (Pharmacol.)

11:45 **123.** Fibrinolytic changes in dogs in response to protamine sulfate. R. HEINRICH AND E. NOE (intr. by JAN NYBOER). *Harper Hosp., Detroit.* (Physiol.)

Tumors IV: General

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 7

Chairman: Harold L. Stewart

9:00 **124.** Enzymatic action of fluids from cystic brain tumors. M. SPIEGEL-ADOLF AND H. T. WYCIS.* *Temple Univ. School of Medicine and Hosp.* (Biochem.)

9:15 **125.** Electrophoretic pattern of serum protein of mice of a new leukemic strain. MARIE A. ANDERSCH AND FRANK H. J. FIGGE.* *Univ. of Maryland Med. School.* (Biochem.)

9:30 **126.** Action of guinea pig serum in inhibiting growth of a transplantable fibrosarcoma in rats. ELOISE JAMESON, HERMAN AINIS AND R. MARK RYAN (intr. by PAUL O. GREELEY). *Univ. of Southern Calif., Los Angeles.* (Physiol.)

9:45 **127.** Conditionality and mammosomatotropic features of estrogen-induced pituitary tumors. KELLY H. CLIFTON* AND JACOB FURTH. *Children's Cancer Research Fndn., Boston.* (Pathol.)

10:00 **128.** Nonsaponifiable components of malignant human liver in Penn serofloccula-tion reaction. RICHARD F. RILEY, YOSHITSUGI HOKAMA,* PAUL KRATZ* AND HARRY S. PENN.* *Univ. of California Med. Ctr., Los Angeles.* (Pharmacol.)

10:15 **129.** Reconciliation of conflicting reports and further data on blood volume in cancer. J. L. STEINFELD (intr. by H. W. CHALKLEY). *Natl. Cancer Inst.* (Physiol.)

10:30 **130.** Neoplasms in female Wistar rats occurring spontaneously and after 1000 r anoxic total body irradiation. B. G. LAMSON, L. H. EWELL* AND L. R. BENNETT.* *Univ. of California at Los Angeles, School of Medicine.* (Pathol.)

10:45 **131.** Ascites tumors in experimental

animals and peritoneal carcinosis in man. HORACE GOLDIE, MATTHEW WALKER* AND LOUISE KELLEY.* *Meharry Med. College.* (Immunol.)

11:00 **132.** Mechanisms of fluid accumulation in ascites tumor growth. ROBERT L. STRAUBE,* MARIAN S. HILL* AND HARVEY M. PATT. *Argonne Natl. Lab.* (Physiol.)

11:15 **133.** Chromosomes of Yoshida ascites tumor cells. SUSUMU OHNO* AND RIOJUN KINOSITA. *City of Hope Med. Ctr.* (Pathol.)

11:30 **133a.** Hydrolipotropic shifts in tissues of albino rats bearing Walker carcinosarcoma 256. ELDON M. BOYD, M. E. MURDOCH,* E. M. KELLY* AND C. E. BOYD.* *Queen's Univ., Kingston, Ontario.* (Pharmacol.)

Radiation: Physiological Effects II

WEDNESDAY, 9:00 A.M.—DENNIS GARDEN LOUNGE

Chairman: Alexander Hollaender

9:00 **134.** Early hypotension induced in the rabbit by whole body x-irradiation. PHILLIPS M. BROOKS AND HERBERT B. GERSTNER (intr. by A. P. GAGGE). *U.S.A.F. School of Aviation Medicine.* (Physiol.)

9:15 **135.** Water balance in the rat following total body x-irradiation. W. O. CASTER* AND W. D. ARMSTRONG. *Univ. of Minnesota.* (Biochem.)

9:30 **136.** Hypertension and renal disease in Wistar rats following 1000 r anoxic total body irradiation. M. S. BILLINGS,* L. R. BENNETT* AND B. G. LAMSON. *Univ. of California, Los Angeles School of Medicine.* (Pathol.)

9:45 **137.** Renal lesions in mice receiving 600 r whole body radiation. WILLIAM ANTOPOL AND SUSI GLAUBACH.* *Beth Israel Hosp., N. Y.* (Pathol.)

10:00 **138.** Bleeding time studies after dextran infusions in normal and irradiated dogs. SOL M. MICHAELSON,* ANDREW KONNERTH* AND JOE W. HOWLAND. *Univ. of Rochester School of Medicine and Dentistry.* (Physiol.)

10:15 **139.** A comparison of acute pathological effects of alpha and beta particle radiation of the rat thyroid gland. STUART W. LIPPINCOTT AND C. J. SHELLABARGER.* *Brookhaven Natl. Lab.* (Pathol.)

10:30 **140.** Skin response of albino mouse to ultraviolet radiation and photorecovery. ALVIN F. RIECK AND EVE CAROL RUDICH (intr. by A. K. PARPART). *Marquette Univ. School of Medicine.* (Physiol.)

10:45 **141.** Biochemical studies on beta-irradiated guinea pig epidermis. CHARLES WEISS AND JOSEPH TABACHNICK.* *Albert Einstein Med. Ctr., Philadelphia.* (Pathol.)

11:00 **142.** In vivo and in vitro lipogenesis in the irradiated rat. MARGARET G. MOREHOUSE AND RONALD L. SEARCY.* *Univ. of Southern California.* (Biochem.)

11:15 **143.** Withdrawn.

Wednesday Afternoon, April 18, 1:15 p.m.

Blood Clotting III

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 6

Chairman: L. B. Jaques

1:15 **144.** Extractable heparin level in different animal tissues. FRANK C. MONKHOUSE. *Univ. of Toronto.* (Physiol.)

1:30 **145.** Tissue heparin and mast cells in rats and rabbits. L. FREEMAN,* L. MARX* AND W. MARX. *Univ. of Southern California School of Medicine.* (Biochem.)

1:45 **146.** Release of heparin in vitro and in vivo. ALLEN L. GROSSBERG, H. GARCIA-AROCHA AND FRED MCILREATH (intr. by F. C. MACINTOSH). *McGill Univ.* (Physiol.)

2:00 **147.** Hyperheparinemia observed clinically and after intravenous injection of papain into rabbits. ARMAND J. QUICK. *Marquette Univ.* (Biochem.)

2:15 **148.** Fibroblastic participation in detoxification of the amine, 48–80, by heparin. R. D. HIGGINBOTHAM* AND THOMAS F. DOUGHERTY. *Univ. of Utah College of Medicine.* (Physiol.)

2:30 **149.** Potentiation of heparin anticoagulant action with sulfonated lignin. TED A. LOOMIS. *School of Medicine, Univ. of Washington.* (Pharmacol.)

2:45 **150** Blood esterase activity after parenteral trypsin and chymotrypsin. ROBERT G. HILL AND J. W. BASTIAN (intr. by N. ERCOLI). *Armour Labs., Chicago.* (Pharmacol.)

3:00 **151.** Fibrinolytic, coagulant and hemolytic properties of snake venoms. PAUL DIDISHEIM* AND JESSICA H. LEWIS. *Univ. of Pittsburgh School of Medicine.* (Physiol.)

3:15 **152.** Effects of intravenous administration of fat emulsion on blood coagulation in dogs. HARRISON H. SHOULDERS, JR., ROBERT C. HARTMANN AND H. C. MENG (intr. by P. F. HAHN). *Vanderbilt Univ. Med. School.* (Physiol.)

3:30 **153.** Transfusions of blood from patients with hemophilia 'A' into normal and thrombocytopenic recipients. ROBERT T. CARROLL,* RUTH R. HOLBURN,* H. L. BAIRD* AND L. M. TOCANTINS. *Jefferson Med. College.* (Physiol.)

3:45 **154.** Isolation of purified human plasmin (fibrinolysin). DANIEL L. KLINE AND JACOB B. FISHMAN.* *Yale Med. School.* (Physiol.)

4:00 **155.** Nature of hemorrhagic disorder following hemolytic transfusion reactions in man. DUDLEY P. JACKSON, JULIUS R. KREVANS* AND C. LOCKARD CONLEY.* *Johns Hopkins Univ.* (Physiol.)

4:15 **156.** Pyrogen induced fibrinolysis in man. KURT N. VON KAULLA AND JERRY WEIL (intr. by JOSEPH HOLMES). *Univ. of Colorado School of Medicine.* (Physiol.)

Radiation: Effects on Blood Cells, Immunity

WEDNESDAY, 1:15 P.M.—DENNIS, GARDEN LOUNGE

Chairman: W. H. Taliaferro

1:15 **157.** Specific enhancement of phagocytic function independent of humoral mediation. STANLEY MARCUS AND DAVID M. DONALDSON.* *Univ. of Utah College of Medicine and Brigham Young Univ.* (Immunol.)

1:30 **158.** Multiplication of St. Louis encephalitis (SLE) virus in ascitic tumor cells implanted in mice irradiated before or after immunization. F. S. CHEEVER AND JAMES F. DICKOS.* *Univ. of Pittsburgh, Grad. School of Public Health.* (Immunol.)

1:45 **159.** Restoration of hemolysin-producing capacity in x-irradiated rabbits. BERNARD N. JAROSLOW* AND WILLIAM H. TALIAFERRO. *Argonne Natl. Lab. and Univ. of Chicago.* (Immunol.)

2:00 **160** Effect of focal irradiation on antibody production. SIDNEY LESKOWITZ AND JOHN B. GRAHAM (intr. by BYRON WAKSMAN). *Massachusetts Gen. Hosp.* (Immunol.)

2:15 **161.** Effect of partial body shielding during irradiation on antibody titers in mice. FALCONER SMITH, H. JEANETTE RUTH* AND MARIE M. GRENAN.* *Natl. Insts. of Health.* (Physiol.)

2:30 **162.** Influence of route of injection of tetanus toxoid on immune response in x-irradiated mice. MYRON S. SILVERMAN AND PAUL H. CHIN (intr. by S. S. ELBERG). *U.S. Naval Radiological Defense Lab.* (Immunol.)

2:45 **163.** Effect of irradiation on allergic inflammation in mice. R. S. SPEIRS (intr. by H. J. CURTIS). *Brookhaven Natl. Lab.* (Physiol.)

3:00 **164.** In vitro studies on incorporation of C^{14}-formate into nucleic acids of rabbit bone marrow following total-body x-irradiation. CARL D. DOUGLASS* AND PAUL L. DAY. *Univ. of Arkansas School of Medicine.* (Biochem.)

3:15 **165.** Presence of homologous cells in marrow of mice protected from effects of irradiation by homologous marrow. RUTH M. MERWIN AND CHARLES C. CONGDON (intr. by WILLIE SMITH). *Natl. Insts. of Health and Oak Ridge Natl. Lab.* (Physiol.)

3:30 **166.** Effect of total-body x-irradiation on the parakeet. HANS G. SCHLUMBERGER AND ULRICH K. HENSCHKE.* *Ohio State Univ.* (Pathol.)

3:45 **167.** X-ray and ultraviolet effects in human leucocytes in vitro. S. P. MARONEY, JR. (intr. by K. M. WILBUR). *Duke Univ.* (Physiol.)

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lobby of Convention Hall to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Thursday Morning, April 19, 9:00 a.m.

Cholinesterase I

THURSDAY, 9:00 A.M.—DENNIS, GARDEN LOUNGE

Chairman: Lloyd D. Seager

9:00 **168.** Colorimetric, micro method for acetylcholinesterase. DON E. MCOSKER* AND LOUISE J. DANIEL. *Cornell Univ.* (Biochem.)

9:15 **169.** Field methods for estimation of blood cholinesterase activity. JOSEPH H. FLEISHER AND C. STANLEY WOODSON (intr. by D. B. DILL). *Army Chemical Ctr.* (Biochem.)

9:30 **170.** Intracellular distribution of acetylcholine and cholineacetylase in human placental tissue. PAUL HAGEN (intr. by D. BONNYCASTLE). *Yale Univ.* (Pharmacol.)

9:45 **171.** Characterization of cholinesterases in chick cells cultivated in vitro. ALAN BURKHALTER,* R. M. FEATHERSTONE, MARION JONES* AND F. W. SCHUELER. *College of Medicine, State Univ. of Iowa.* (Pharmacol.)

10:00 **172.** Inhibitory effect of local anesthetics and their halogenated analogs on human plasma and red cell cholinesterase. NORA BEART,* SYDNEY P. SHANOR,* GERTRUDE R. VAN HEES,* ERVIN G. ERDÖS* AND FRANCIS F. FOLDES. *Mercy Hosp. and Univ. of Pittsburgh.* (Pharmacol.)

10:15 **173.** Effect of structural changes on enzyme kinetics of procaine hydrolysis by plasma cholinesterase. DAVID L. DAVIS,* FRANCIS F. FOLDES AND VICTOR P. WHITTAKER.* *Mercy Hosp., Univ. of Pittsburgh, and Univ. of Cincinnati.* (Pharmacol.)

10:30 **174.** Sex variation in human plasma cholinesterase activity. SYDNEY P. SHANOR,* NORA BEART,* GERTRUDE R. VAN HEES,* ERVIN G. ERDÖS* AND FRANCIS F. FOLDES. *Mercy Hosp. and Univ. of Pittsburgh.* (Pharmacol.)

10:45 **175.** Qualitative variation of serum cholinesterase activity in man as defined by dibucaine-numbers. W. KALOW, K. GENEST* AND N. STARON.* *Univ. of Toronto.* (Pharmacol.)

11:00 **176.** Interrelationship of suxamethonium, suxethonium and succinylmonocholine and human cholinesterases. FRANCIS F. FOLDES, GERTRUDE R. VAN HEES,* SYDNEY P. SHANOR* AND NORA BEART.* *Mercy Hosp. and Univ. of Pittsburgh.* (Pharmacol.)

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

Thursday Afternoon, April 19, 1:15 p.m.

Symposium: Nutritional and Toxicological Studies on Irradiated Foods

THURSDAY, 1:15 P.M.—CONVENTION HALL ARENA STAGE

Chairman: T. E. Friedemann

177. Effect of irradiation sterilization on nutritive value of protein and energy of food. B. CONNOR JOHNSON AND V. CHALAM METTA.* *Univ. of Illinois.*

178. Wholesomeness of a gamma-irradiated diet fed to chickens. L. E. BROWNELL,* C. H. BURNS* AND H. C. ECKSTEIN. *Fission Products Lab., Univ. of Michigan.*

179. Toxicity of lipid peroxides in the rat. J. S. ANDREWS,* J. F. MEAD AND W. H. GRIFFITH. *School of Medicine, Univ. of California at Los Angeles.*

180. Radiation effects on water soluble vitamins in raw beef. H. D. ALEXANDER,* E. J. DAY,* H. E. SAUBERLICH AND W. D. SALMON. *Alabama Polytechnic Inst.*

181. Effect of ionizing radiations on vitamin K. LUTHER R. RICHARDSON AND PATRICIA WOODWORTH.* *Texas Agricultural Exp. Station.*

182. Wholesomeness and possible carcinogenicity of radiated foods. L. J. TEPLY AND B. E. KLINE.* *Wisconsin Alumni Research Fndn.*

183. Long-term feedings of irradiated pork and organ meats. EDWARD C. BUBL* AND JOSEPH S. BUTTS. *Oregon State College.*

184. Wholesomeness of gamma-radiation sterilized foods fed to rats. H. F. KRAYBILL,* M. S. READ* AND T. E. FRIEDEMANN. *Fitzsimons Army Hosp.*

Cholinesterase II

THURSDAY, 1:15 P.M.—DENNIS, GARDEN LOUNGE

Chairman: Daniel T. Watts

1:15 185. Acetylcholine esterase as a trigger for the transmembrane reaction. R. H. BEUTNER. *Des Moines Still College.* (Physiol.)

1:30 186. Acid-base changes of blood in acute anticholinesterase intoxication. ARMAND J. GOLD, JOHN M. WELLER AND GUSTAVE FREEMAN (intr. by HANS J. TRURNIT). *Army Chemical Ctr.* (Physiol.)

1:45 187. In vivo inactivity of some potent cholinesterase inhibitors. J. R. TUREMAN,* H. D. BALDRIDGE,* E. B. COOK,* S. L. FRIESS* AND D. J. JENDEN. *Naval Med. Research Inst.* (Pharmacol.)

2:00 188. Antagonists to neuro-muscular block produced by Sarin. J. H. WILLS, ANNE M. KUNKEL* AND JEAN S. MONIER.* *Army Chemical Ctr.* (Pharmacol.)

2:15 189. Inhibition of cholinesterases by alkylphosphates and their reactivation in vivo. HELMUT KEWITZ (intr. by I. B. WILSON). *Columbia Univ. College of Physicians and Surgeons.* (Biochem.)

2:30 190. Effect of nikethamide in combatting anticholinesterase poisoning. PHILIP ROSENBERG* AND J. M. COON. *Jefferson Med. College.* (Pharmacol.)

2:45 191. Reduction in serum complement concentration in myasthenia gravis. W. L. NASTUK, K. E. OSSERMAN* AND O. J. PLESCIA.* *College of Physicians and Surgeons, Mount Sinai Hosp., New York City, and Inst. of Microbiology, Rutgers Univ.* (Physiol.)

3:00 192. Effect of cholinesterase on superior cervical ganglion of the cat. LLOYD R. YONCE (intr. by CHARLES R. BRASSFIELD). *Univ. of Michigan Med. School.* (Physiol.)

3:15 193. Intramolecular organization of acetylcholinesterase by irradiation studies. IRVING SERLIN* AND GEORGE C. COTZIAS. *Brookhaven Natl. Lab.* (Pathol.)

THE AMERICAN PHYSIOLOGICAL SOCIETY

Seventy-sixth Meeting

ATLANTIC CITY, APRIL 16–20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 16, 1:15 p.m.

Insulin: Diabetes

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM F

Chairman: R. Levine

1:15 **194.** Biochemical differences in effects of growth hormone and insulin. GEORGE H. BEATON AND DORIS M. CURRY (intr. by E. W. McHENRY). *Univ. of Toronto.* (Biochem.)

1:30 **195.** Antiketogenic effects of glucose and fructose in sodium fluoroacetate diabetes. FRANK L. ENGEL AND JOAN FREDERICKS.* *Duke Univ.*

1:45 **196.** Influence of dietary carbohydrate on development of starvation diabetes in man. J. W. CRAIG, M. MILLER, W. R. DRUCKER AND H. WOODWARD, JR. (intr. by R. A. SHIPLEY). *Western Reserve Univ.*

2:00 **197.** Use of D and O^{18} to measure total CO_2 output and body water of obese-hyperglycemic mice. RUTH MCCLINTOCK* AND NATHAN LIFSON. *Univ. of Minnesota.*

2:15 **198.** Glucose tolerance and response to insulin in young and old subjects. FELIX A. SILVERSTONE,* MARTIN BRANDFONBRENER,* NATHAN W. SHOCK AND MARVIN J. YIENGST.* *Natl. Heart Inst. and Baltimore City Hosps.*

2:30 **199.** Effect of acidosis on intracellular composition in normal and diabetic rats. NANCY NICHOLS AND GEORGE NICHOLS, JR. (intr. by HOWARD F. ROOT). *Harvard Med. School.* (Nutr.)

2:45 **200.** Influence of insulin and cortisone on glucose utilization. F. X. HAUSBERGER AND B. C. HAUSBERGER (intr. by S. A. D'ANGELO). *Jefferson Med. College.*

3:00 **201.** Withdrawn.

3:15 **202.** Effect of insulin on tissue distribution of intravenously injected l-arabinose. JACOB SACKS AND STANLEY BAKSHY.* *Univ. of Arkansas.*

3:30 **203.** Glucose utilization and lactate production by leucocytes from diabetic and normal human subjects. MARY E. DUMM. *New York Univ.-Bellevue Med. Ctr.*

Heart: Metabolism, Dynamics

MONDAY, 1:15 P.M.—DENNIS, ST. DENNIS ROOM

Chairman: Nathan Shock

1:15 **204.** Comparison of metabolism of right and left ventricle and atrium of rat heart. KONG-OO GOH AND R. DUNCAN DALLAM (intr. by RAY G. DAGGS). *Univ. of Louisville School of Medicine.*

1:30 **205.** Effect of hyperthyroidism on cardiac metabolism in the dog. DOROTHY A. PIATNEK AND ROBERT E. OLSON (intr. by HARWOOD S. BELDING). *Grad. School of Public Health, Univ. of Pittsburgh.*

1:45 **206.** Mechanism of Branham-Nicoladoni sign, bradycardia following closure of arteriovenous fistula. DONAL M. BILLIG* AND OSCAR W. SHADLE. *Univ. of Louisville School of Medicine.*

2:00 **207.** Physiologic mechanism of hypoxemia in atrial septal defect. HIROSHI

KUIDA,* PAUL NOVACK,* FLORENCE W. HAYNES, LEONARD A. COBB, JR.* AND LEWIS DEXTER. *Peter Bent Brigham Hosp. and Harvard Med. School.*

2:15 **208.** Cardiac arrest in heart-lung preparation from hyperkalemia. L. J. O'BRIEN,* H. W. DISERENS,* G. T. STEVENS* AND M. M. GUEST. *Univ. of Texas Med. Branch.*

2:30 **209.** Cardiodynamic responses to electrical stimulation of brain stem. CLARENCE N. PEISS, R. T. MIDDO,* WALTER C. RANDALL AND DAVID S. JONES.* *Stritch School of Medicine, Loyola Univ.*

2:45 **210.** Depressed ventricular function in the dog during acute cardiac tamponade treated by administration of Aramine and Wyamine. J. T. BINION, W. L. MORGAN, S. J. SARNOFF AND G. H. WELCH (intr. by M. O. LEE). *Natl. Insts. of Health.*

3:00 **211.** Support of circulation with Aramine during high levels of positive pressure breathing in the dog. W. L. MORGAN, J. T. BINION AND S. J. SARNOFF (intr. by DANIEL A. MCGINTY). *Natl. Insts. of Health.*

3:15 **212.** Comparison of rates of red cell destruction produced by Hufnagel and elastic silicone valves in dogs. FREDERICK STOHLMAN, JR., STANLEY J. SARNOFF, ROBERT B. CASE AND ZENA J. TAYLOR (intr. by RONALD E. SCANTLEBURY). *Natl. Insts. of Health.*

3:30 **213.** Evaluation of factors enhancing cardiac force during hypothermia. THEODORE G. BROWN, JR.* AND MARION DEV. COTTEN. *Med. College of South Carolina and Tulane Univ. School of Medicine.* (Pharmacol.)

Kidney: Clearance, Circulation

MONDAY, 1:15 P.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: Eric Ogden

1:15 **214.** Ascites formation without sodium retention in dogs with thoracic inferior vena cava constriction or pulmonary artery constriction. WILMOT C. BALL, JR,* JAMES O. DAVIS AND M. JAY GOODKIND.* *Natl. Heart Inst.*

1:30 **215.** Virtual renal functional volumes. FRANCIS P. CHINARD AND THEODORE ENNS.* *Johns Hopkins Med. School and Baltimore City Hosps.* (Biochem.)

1:45 **216.** Renal blood flow and volume from indicator dilution curves. IRVING GREEN (intr. by PHILIP DOW). *Med. College of Georgia.*

2:00 **217.** Renal clearance of radiocarbon labeled inulin carboxylic acid. J. A. D. COOPER,* B. B. REEB,* N. S. RADIN* AND D. P. EARLE. *Northwestern Univ. Med. School and Radioisotope Unit, VA Research Hosp., Chicago.*

2:15 **218.** Renal clearance studies in Wilsons disease. A. G. BEARN, T. F. YÜ, A. B. RITTERBAND AND A. B. GUTMAN (intr. by VINCENT P. DOLE). *Rockefeller Inst. and Mt. Sinai Hosp., New York City.*

2:30 **219.** Relationship between pH, chloride and inulin in proximal tubule fluid of necturus kidney. GERHARD GIEBISCH (intr. by R. C. SWAN). *Woman's Med. College of Pennsylvania.*

2:45 **220.** Comparative aspects of urea excretion in vertebrates. BODIL SCHMIDT-NIELSEN. *Duke Univ.*

3:00 **221.** Factors affecting renal excretion in a fresh-water turtle. JAMES K. WILLIAMS (intr. by LOUIS A. TOTH). *Louisiana State Univ. School of Medicine.*

3:15 **222.** Nature of fluids in functionally distended kidney. H. G. SWANN AND A. A. ORMSBY.* *Univ. of Texas Med. School.*

3:30 **223.** Transtubular electrical potentials of rat kidney. SIDNEY SOLOMON (intr. by E. FISCHER). *Med. College of Virginia.*

Respiration: Mechanics, Elasticity of Lungs

MONDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: Julius H. Comroe

1:15 **224.** Respiratory elastance during single passive inflations and deflations in normal and partially paralyzed humans. ALFRED W. BRODY, PATRICK S. O'HALLORAN, HARRY J. WANDER AND EVERETT L. ROLEY (intr. by J. RAYMOND JOHNSON). *Creighton Memorial-St. Joseph's Hosps., Omaha.*

1:30 **225.** Estimation of compliance of components of thorax. BENJAMIN G. FERRIS, JR. *Harvard School of Public Health.*

1:45 **226.** Changes in lung compliance during development of ANTU pulmonary edema. JAMES C. MOORE AND MARK S. SEXTER (intr. by HAMPDEN C. LAWSON). *Univ. of Louisville School of Medicine.*

2:00 **227.** Effect of position on respiratory minute volume of anesthetized dogs. E. A. REED. *Hahnemann Med. College.*

2:15 **228.** Comparison of intraesophageal

and intrapleura pressures in subjects seated and supine. J. MEAD AND E. A. GAENSLER.* *Harvard School of Public Health.*

2:30 **229.** Age differences in lung compartments and bellows function. ARTHUR H. NORRIS,* NATHAN W. SHOCK, MILTON LANDOWNE AND JOSEPH A. FALZONE, JR.* *Natl. Heart Inst. and Baltimore City Hosps.*

2:45 **230.** Effects of respiratory impedances on pulmonary ventilation and alveolar gas exchange. W. E. HULL AND F. G. HALL. *Duke Univ. School of Medicine.*

3:00 **231.** Dependence of lung mechanical properties on anatomic relationships within terminal lung units. EDWARD P. RADFORD, JR. AND MARTHA MCLAUGHLIN (intr. by LUCIEN BROUHA). *E. I. du Pont de Nemours & Co., Newark, Del.*

3:15 **232.** Relationship between respiratory dead space and resistance and estimation of lung tissue resistance. JOHN A. CLEMENTS AND RUDOLPH P. JOHNSON (intr. by W. H. CHAMBERS). *Army Chemical Ctr.*

3:30 **233.** Lung area from surface tension effects. ELWYN S. BROWN (intr. by D. B. DILL). *Army Chemical Ctr.*

Endocrines: Gonads, Reproduction

MONDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: J. H. Leatham

1:15 **234.** Glucose-6-phosphate and 6-phosphogluconate dehydrogenase activities of secondary sex tissues of castrated rats. GUILFORD G. RUDOLPH (intr. by GEORGE R. MENEELY). *VA Hosp., Nashville, Tenn.*

1:30 **235.** Relaxin reference standard for bioassay of extracts in estrogenized intact guinea pigs. ROBERT L. KROC, VIVIAN L. BEACH AND NEIL R. STASILLI (intr. by ARTHUR A. HELLBAUM). *Warner-Chilcott Research Labs.*

1:45 **236.** Purification of relaxin by selective ion-exchange chromatography. JOHN DOCZI, GEORGE E. PHILLIPS AND SYLVIA MALAMENT (intr. by G. H. MANGUN). *Warner-Chilcott Research Labs.* (Biochem.)

2:00 **237.** Effect of sex hormones on fat deficiency syndrome. T. C. PANOS,* G. KLEIN,* R. L. WALL* AND J. C. FINERTY. *Univ. of Texas Med. Branch.*

2:15 **238.** Androgen and inositol content of male accessory organs of the rat. R. M. MELAMPY AND R. B. MASON.* *Iowa State College Agric. Exper. Station.*

2:30 **239.** Inhibition of PMS by various polyhydroxybenzene derivatives. NATHAN MILLMAN AND FRED ROSEN.* *Ortho Research Fndn.*

2:45 **240.** Response of infertile mice to progesterone and gonadotrophin. CHARLES A. BARRACLOUGH (intr. by ROBERT D. TSCHIRGI). *Univ. of Calif. at L.A.*

3:00 **241.** Protein composition of rat uterine luminal fluid. IRA RINGLER (intr. by FREDERICK L. HISAW). *Harvard Univ.*

3:15 **242.** Physiological responses during coitus in the human. ROSCOE G. BARTLETT AND V. C. BOHR (intr. by FREEMAN H. QUIMBY). *Physiology Research Labs., Colton, Calif.*

3:30 **243.** Thyroxine-binding capacity of serum in pregnancy. JACOB ROBBINS (intr. by J. E. RALL). *Natl. Insts. of Health.*

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

Tuesday Morning, April 17, 9:00 a.m.

Axonology

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM A

Chairman: D. W. Bronk

9:00 **244.** Facilitation and depression of excitability in artificial synapse. CARLO A. TERZUOLO AND SVEN G. ELIASSON (intr. by JANE E. HYDE). *Univ. of California at Los Angeles.*

9:15 **245.** Local response in an excitable membrane. MARIO ALTAMIRANO. *College of Physicians and Surgeons, Columbia Univ.*

9:30 **246.** Further evidence for fixed charge hypothesis. GILBERT LING AND ARLENE SCHMOLINSKE.* *Univ. of Illinois.*

9:45 **247.** 'Local or initial' potential of crustacean single motor axon. ERNEST B. WRIGHT AND WILLIAM J. ADELMAN.* *Univ. of Rochester School of Medicine and Dentistry.*

10:00 **248.** Conductile and integrative functions of crayfish giant axons. C. Y. KAO* AND H. GRUNDFEST. *State Univ. of New York and College of Physicians and Surgeons, Columbia Univ.*

10:15 **249.** Alteration in mammalian nerve pyruvate metabolism by anesthetic gases and barbiturates. FRANK G. CARPENTER (intr. by J. F. MACLEOD). *Cornell Univ. Med. College.*

10:30 **250.** Temperature dependence of narcosis in nerve. RAYMOND A. SJODIN (intr. by L. J. MULLINS). *Purdue Univ.*

10:45 **251.** Membrane conductance changes in isolated nodes of Ranvier. GORDON M. SCHOEPFLE. *Washington Univ. School of Medicine.*

11:00 **252.** Ionic transport in sciatic nerve of the toad, Bufo marinus. ABRAHAM M. SHANES AND MORRIS D. BERMAN.* *Natl. Inst. of Arthritis and Metabolic Diseases.*

11:15 **253.** Effects of potassium ions on recovery processes of nerve. C. M. CONNELLY,* W. J. SULLIVAN* AND D. W. BRONK. *Rockefeller Inst.*

Muscle: Basic Mechanism of Contraction

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM E

Chairman: M. F. Morales

9:00 **254.** Effect of disodium adenosine triphosphate and sodium uridine triphosphate on shortening of muscle protoplasm. FLOYD J. WIERCINSKI. *Hahnemann Med. College.*

9:15 **255.** Stimulation-length sequence and length-tension diagram. BYRON A. SCHOTTELIUS (intr. by WALTER S. MCLELLAN). *Univ. of North Carolina.*

9:30 **256.** Effects of temperature on isometric tensions of pellicular actomyosin fibers. BERNARD D. TUNIK (intr. by TERU HAYASHI). *Columbia Univ.*

9:45 **257.** Apparent Michaelis-Menten constants obtained from steady state length measurements on glycerol-treated muscle fiber ATP system. WILLIAM J. BOWEN AND JACOB J. BLUM. *Natl. Insts. of Health and Naval Med. Research Inst.*

10:00 **258.** Effects of nitrate on normal and dystrophic rabbit muscle. ALEXANDER SANDOW AND EDWARD STEIN.* *College of Arts and Science, New York Univ.*

10:15 **259.** Binding of sodium and potassium to muscle proteins. MARC S. LEWIS AND HARRY A. SAROFF (intr. by S. S. SPICER). *Natl. Inst. of Arthritis and Metabolic Diseases.*

10:30 **260.** Uterine myosin. D. R. KOMINZ AND F. SAAD (intr. by C. I. WRIGHT). *Natl. Inst. of Arthritis and Metabolic Diseases.*

10:45 **261.** Interaction of myosin with ATP. J. J. BLUM AND M. F. MORALES. *Naval Med. Research Inst.*

11:00 **262.** Oxygen deficit in dog gastrocnemius. DON C. PEARL, JR., L. D. CARLSON AND W. W. SHERWOOD (intr. by A. A. WARD, JR.). *Univ. of Washington School of Medicine.*

11:15 **263.** Pyruvate phosphokinase system as a relaxing factor in glycerinated muscle. L. LORAND AND C. MOOS.* *Northwestern Univ.*

11:30 **264.** Effect of thyroxin on stimulus frequency-tension output relationship in neuromuscular system. NEENA B. SCHWARTZ AND ANN H. INGOLD (intr. by C. I. REED). *Univ. of Illinois College of Medicine.*

Brain: EEG Stimulation

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM F

Chairman: Fred A. Mettler

9:00 **265.** Autonomic responses to cerebellar stimulation in suprathalamic decerebrate (decorticate) cat. J. D. EMERSON,* JOHN M.

BRUHN, G. M. EMERSON* AND J. O. FOLEY.* *Med. College of Alabama and Univ. of Alabama School of Dentistry.*

9:15 **266.** Relationships of caudate nucleus to cerebellum. WILLIAM S. COXE* AND RAY S. SNIDER. *Northwestern Univ. Med. School.*

9:30 **267.** Eating and drinking responses by diencephalic stimulation in unanesthetized rats. FREDERICK W. MAIRE (intr. by H. D. PATTON). *Univ. of Washington School of Medicine.*

9:45 **268.** Effects of cerebellar stimulation on post-ictal depression in cats. PETER A. STEWART AND HARRY L. WILLIAMS (intr. by JOHN HALDI). *Emory Univ.*

10:00 **269.** Possible subcortical mechanisms requisite to forced circus movements. RICHARD P. WHITE* AND HAROLD E. HIMWICH. *Galesburg State Research Hosp.*

10:15 **270.** Activation of striopallidum by diencephalic impulses. E. A. SPIEGEL, E. G. SZEKELY* AND W. W. BAKER.* *Temple Univ. School of Medicine.*

10:30 **271.** Thalamic inhibition of subcortically induced locomotor movements. ROBERT G. GROSSMAN* AND S. C. WANG. *Columbia Univ.*

10:45 **272.** Relations between EEG changes and experimental local closed cerebral injury with edema. RAYMOND CLASEN, PAULINE COOKE, JAMES WILLIAMS AND GEORGE HASS (intr. by C. BRUCE TAYLOR). *Presbyterian Hosp., Chicago.*

11:00 **273.** Effects of mephentermine on cerebral circulation and metabolism. R. W. FERGUSON,* D. W. RICHARDSON* AND J. L. PATTERSON, JR. *Med. College of Virginia.*

Symposium: Biology of Aging

TUESDAY, 9:00 A.M.—CONVENTION HALL, ARENA STAGE

Chairman: Nathan W. Shock

274. Introduction: Aging as a biological problem. N. W. SHOCK. *Sect. on Gerontology, Natl. Heart Inst. and Baltimore City Hosps.*

275. Age changes in the morphology of tissues and cells. WARREN ANDREW. *Dept. of Anatomy, Bowman-Gray School of Medicine, Winston Salem, N.C.*

276. Cellular physiology and aging. L. V. HEILBRUNN. *Dept. of Zoology, Univ. of Pennsylvania, Philadelphia.*

277. Enzymes and aging. C. H. BARROWS. *Sect. on Gerontology, Natl. Heart Inst., and Baltimore City Hosps.*

278. Comparative physiology of aging. A. I. LANSING. *Dept. of Anatomy, Emory Univ., Emory, Ga.*

279. *Discussants:* RALPH W. GERARD, *Univ. of Michigan*; A. B. HASTINGS, *Harvard Med. School*; M. B. VISSCHER, *Univ. of Minnesota.*

Heart: Work, Dynamics

TUESDAY, 9:00 A.M.—DENNIS, ST. DENNIS ROOM

Chairman: R. F. Rushmer

9:00 **280.** Cardiovascular and renal hemodynamic studies in dogs before and after hypophysectomy. M. JAY GOODKIND,* JAMES O. DAVIS, WILMOT C. BALL, JR.* AND ROBERT C. BAHN. *Natl. Heart Inst. and Natl. Inst. of Arthritis and Metabolic Diseases.*

9:15 **281.** Neural and humoral effects on ventricular performance. ROBERT F. RUSHMER, JORGE ANZOLA* AND THEODORE C. WEST.* *Univ. of Washington.*

9:30 **282.** Simultaneous and independent determination of right ventricular and left ventricular end-diastolic (EDV), end-systolic (ESV) and stroke volumes. J. P. HOLT, J. W. ALLENSWORTH,* D. M. COLLINS* AND M. FINE.* *Univ. of Louisville.*

9:45 **283.** Comparison of effective stroke volume and simultaneously recorded left ventricular, aortic and radial arterial pressure pulses in aortic stenosis in man. J. LEO WRIGHT. *Mayo Fndn.*

10:00 **284.** Relationship between stroke work and ventricular contractile force. MARION DEV. COTTEN AND HARRIET M. MALING. *Natl. Heart Inst.* (Pharmacol.)

10:15 **285.** Simultaneous estimation of flow, pressure gradients and ventricular work in aortic and mitral stenosis. HARRY GOLDBERG, RALPH C. SMITH,* LUIS VILLACA,* ASHER WALDOW* AND GEORGE RABER.* *Hahnemann Med. College and Hosp.*

10:30 **286.** Cardiac catheter-tip pressure gauge. FRANK W. NOBLE (intr. by BERT R. BOONE). *Natl. Heart Inst.*

10:45 **287.** Effect of respiration and previous cycle length on pulse wave arrival time. SIMON RODBARD. *Univ. of Buffalo Chronic Disease Research Inst.*

11:00 **288.** Effect of independent alterations of stroke volume, aortic pressure and heart rate on left ventricular function. W. N. STAINSBY, S. J. SARNOFF, E. BRAUNWALD, R. B. CASE AND G. H. WELCH (intr. by J. A. SHANNON). *Natl. Heart Inst.*

11:15 **289.** Synchronous recordings in the dog

to determine relations of direct-body ballistocardiogram with other cardiovascular measurements. T. D. DARBY* AND R. P. WALTON. *Med. College of South Carolina.* (Pharmacol.)

Kidney: Metabolism, Reabsorption

TUESDAY, 9:00 A.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: W. D. LOTSPEICH

9:00 **290.** Effect of phlorizin on oxidative metabolism in kidney. WILLIAM D. LOTSPEICH AND DANIEL M. KELLER.* *Univ. of Cincinnati College of Meidcine.*

9:15 **291.** Biochemical effects of dl-methionine, including depressed renal transport of para-aminohippurate (PAH). ABRAHAM G. WHITE. *Mt. Sinai Hosp., New York City.*

9:30 **292.** Renal metabolism of 5-hydroxyindole acetic acid. AGAMEMNON DESPOPOULOS (intr. by E. M. RANKIN). *Natl. Heart Inst.*

9:45 **293.** Mechanism of potassium excretion in the chicken. JACK ORLOFF AND DOUGLAS G. DAVIDSON.* *Natl. Heart Inst.*

10:00 **294.** Sodium and potassium in single nephrons of necturus kidneys. PHYLLIS A. BOTT. *Woman's Med. College of Pennsylvania.* (Biochem.)

10:15 **295.** Interrelations among acetoacetate, inorganic phosphate and inorganic sulfate during their renal tubular reabsorption in dogs. JULIUS J. COHEN AND FREDRIK BERGLUND (intr. by ROBERT A. KEHOE). *Univ. of Cincinnati College of Medicine.*

10:30 **296.** Effect of inhibitors of oxidative phosphorylation on renal transport of inorganic phosphate. RICHARD L. MALVIN (intr. by GSUTAV ECKSTEIN). *Univ. of Cincinnati College of Medicine.*

10:45 **297.** Factors influencing phosphate Tm in the dog. DAVID D. THOMPSON (intr. by JOSEPH C. HINSEY). *Cornell Univ. Med. College.*

11:00 **298.** Phosphaturic effect of parathyroid extract in the dog. JAMES FOULKS (intr. by ALFRED GILMAN). *Univ. of British Columbia.*

11:15 **299.** Urinary substance from adrenalectomized rats provoking sodium retention in rats with intact adrenals. ELAINE P. RALLI, EDUARDO ORTI,* MARY E. DUMM AND BERTRAM LAKEN.* *New York Univ.-Bellevue Med. Ctr.*

Respiration: Lung Gases, Control

TUESDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: John F. Perkins

9:00 **300.** Effects of changes in tidal volume and alveolar P_{CO_2} on physiological dead space. D. Y. COOPER AND C. J. LAMBERTSEN (intr. by I. S. RAVDIN). *Univ. of Pennsylvania School of Medicine.* (Pharmacol.)

9:15 **301.** Interrelations of CO_2, O_2 and vagal influences on respiratory centers. PEI-CHIN TANG AND ALLAN C. YOUNG. *Univ. of Texas Southwestern Med. School and Univ. of Washington Med. School.*

9:30 **302.** Rapid evaluation of basic functions of lung using recording oximeter and oxygen analyzer. JOHN F. PERKINS, JR., WILLIAM E. ADAMS,* JOSEPH D. HOWARD* AND DARIO B. DOMIZI.* *Univ. of Chicago.*

9:45 **303.** Polarographic oxygen tension determination: factors causing calibration-change in blood. R. H. SHEPARD (intr. by R. L. RILEY). *Johns Hopkins Univ.*

10:00 **304.** Application of polarographic method for continuous recording of oxygen tension with platinum electrodes. ALBERT F. KELSO AND CLARENCE N. PEISS (intr. by ARTHUR H. STEINHAUS). *Stritch School of Medicine, Loyola Univ.*

10:15 **305.** Respiration during muscular activity in dogs subjected to hemorrhage. FREDERICK F. KAO (intr. by ARTHUR A. SIEBENS). *State Univ. of New York College of Medicine.*

10:30 **306.** Effect of volume and rate of inflation of transpulmonary pressure and response of pulmonary stretch receptors. HARRY L. DAVIS,* WARD S. FOWLER AND EDWARD H. LAMBERT. *Mayo Fndn.*

10:45 **307.** Effects in dogs and monkeys of sarin and parathion intoxication on respiratory resistance. RUDOLPH P. JOHNSON AND GUSTAVE FREEMAN (intr. by J. HENRY WILLS). *Army Chemical Ctr.*

11:00 **308.** Connection between uneven ventilation of lungs and alveolo-arterial oxygen tension gradient in normal subjects, breathing air. W. A. BRISCOE* AND ANDRE COURNAND. *Columbia Univ.*

11:15 **309.** Respiratory movements of the vocal cords. B. RAYMOND FINK, MILOS BASEK AND V. EPANCHIN (intr. by W. W. WALCOTT). *Columbia Univ.*

Endocrines: Adrenal Cortex, Metabolic Effects

TUESDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: David Rapport

9:00 **310.** Excretion of sodium-retaining factor by cortisone-treated adrenalectomized hypertensive patients. R. J. GIRERD* AND D. M. Green. *Univ. of Southern California.*

9:15 **311.** Radioactive glucose and insulin hypersensitivity in hypophysectomized dog. J. S. WALL,* R. STEELE, R. C. DE BODO AND N. ALTSZULER.* *New York Univ. College of Medicine and Brookhaven Natl. Lab.*

9:30 **312.** Effect of cortisone on carbohydrate metabolism as studied with C^{14} glucose in hypophysectomized and adrenalectomized dogs. N. ALTSZULER, R. STEELE, J. S. WALL AND R. C. DE BODO (intr. by S. J. FARBER). *New York Univ. College of Medicine and Brookhaven Natl. Lab.*

9:45 **313.** Level of adrenal cortex extract necessary to simulate the lymphatic gland changes occurring in young chickens with fowl typhoid. HENRY W. GARREN (intr. by F. N. CRAIG). *North Carolina State College.*

10:00 **314.** Relation of adrenal to phosphorus metabolism of bone marrow. IRWIN BERMAN,* ABRAHAM EDELMANN AND ALBERT S. GORDON. *Grad. School of Arts and Science, New York Univ. and Brookhaven Natl. Lab.*

10:15 **315.** Influence of steroids on growth of Neurospora crassa. GABRIEL LESTER,* DAVID STONE AND OSCAR HECHTER. *Worchester Fndn. for Exptl. Biology and Yale Univ. School of Medicine.*

10:30 **316.** Effects of dehydroepiandrosterone. EVELYN HOWARD. *Johns Hopkins Med. School.*

10:45 **317.** Effects of cortisone, hydrocortisone and their dehydroderivatives, prednisone and prednisolone, on anaphylactic shock in mice. JULIA M. EINBINDER,* CHARLES L. FOX, JR. AND CARL T. NELSON.* *Columbia Univ. College of Physicians and Surgeons and New York Med. College.*

11:00 **318.** Urinary excretion of α-ketols on administration of 9α-fluorohydrocortisone and Δ^1-cortisone to cats. K. GUNDERSEN AND J. C. TOUCHSTONE (intr. by F. D. W. LUKENS). *George S. Cox Med. Research Inst. and Univ. of Pennsylvania Hosp.*

11:15 **319.** Extra-hepatic conjugation of hydrocortisone. M. DON TURNER (intr. by JAMES D. HARDY). *Univ. of Mississippi Med. Ctr.*

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lobby of Convention Hall to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Tuesday Afternoon, April 17, 1:15 p.m.

Brain

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM F

Chairman: Theodore C. Ruch

1:15 **320.** Cerebral cortico-subcortical interaction and insulin. ROBERT G. GRENELL AND M. WOLBARSHT.* *Univ. of Maryland.*

1:30 **321.** A toxin in the urine of psychotic patients. DAVID I. MACHT AND DOROTHY KREMEN.* *Sinai Hosp., Baltimore, Md.*

1:45 **322.** Effects of lysergic acid diethylamide and related amines on electrical activity of rat brain. ALAN G. SLOCOMBE (intr. by HUDSON HOAGLAND). *Worchester Fndn. for Exptl. Biology.*

2:00 **323.** Production of permanent state of excitation in mice and rats with β β-iminodiproprionitrile. H. AZIMA AND B. GRAD (intr. by R. A. CLEGHORN). *McGill Univ. and Allan Memorial Inst., Montreal.*

2:15 **324.** Gradients of motor function in the whole cerebral cortex of the unanesthetized monkey. JOHN C. LILLY, JOHN R. HUGHES* AND THELMA W. GALKIN.* *Natl. Inst. of Mental Health.*

2:30 **325.** Brain acetylcholine and behavior. M. H. APRISON AND P. NATHAN.* *Galesburg State Research Hosp.*

2:45 **326.** Avoidance learning motivated by hypothalamic stimulation. BERTRAM D. COHEN,* GEORGE W. BROWN AND MARJORIE L. BROWN.* *VA Hosp., Iowa City and Univ. of Iowa Med. School.*

3:00 **327.** Intracellular recording of cortical potentials. K. KRNJEVIĆ (intr. by E. A. BOYDEN). *Univ. of Washington School of Medicine.*

3:15 **328.** Behavioral and action potential responses to stimulation of subcortical structures in unanesthetized cat. N. A. BUCHWALD AND F. R. ERVIN (intr. by L. M. N. BACH). *Southeast Louisiana Hosp. and Tulane Univ.*

3:30 **329.** Attraction and avoidance evoked by steptal and rhinencephalic stimulation in monkey. JOSE M. R. DELGADO AND BEN BURSTEN.* *Yale Univ. School of Medicine.*

Circulation: Bloodflow, Vascular Permeability

TUESDAY, 1:15 P.M.—DENNIS, ST. DENNIS ROOM

Chairman: Arthur C. Guyton

1:15 **330.** Effect of exercise on splanchnic blood flow and splanchnic blood volume in man. HENRY O. WHEELER,* OWEN L. WADE,* BURTON COMBES,* ALFRED W. CHILDS,* ANDRE COURNAND AND STANLEY E. BRADLEY. *Columbia Univ.*

1:30 **331.** Vascular and extravascular distribution of radioiodoalbumin in mice. JULIUS J. FRIEDMAN (intr. by H. S. MAYERSON). *Tulane Univ. School of Medicine.*

1:45 **332.** Passage of colloidal particles through dermal capillaries under influence of histamine. JOHN F. ALKSNE* AND H. STANLEY BENNETT. *Univ. of Washington.*

2:00 **333.** Extra-splanchnic blood volume: importance in calculation of liver blood flow from colloid disappearance rate. ERNEST L. DOBSON, GEORGE F. WARNER,* CAROLINE R. FINNEY* AND DOROTHY M. ADAMSON.* *Univ. of California, Berkeley.*

2:15 **334.** Mixing curve of erythrocytes in dogs. G. S. EADIE AND IVAN W. BROWN, JR.* *Duke Univ. School of Medicine.*

2:30 **335.** Sympathetic innervation of the nose. FLORENT E. FRANKE, PETER O. BRAMANTE* AND WILMA I. WINTER.* *St. Louis Univ. School of Medicine.*

2:45 **336.** Measurement of blood velocity by ultrasound. J. F. HERRICK, E. J. BALDES, M. G. HAUGEN* AND W. R. FARRALL.* *Mayo Clinic.*

3:00 **337.** Intact-vessel electromagnetic flow recording. ADAM B. DENISON, JR. AND MERRIL P. SPENCER. *Bowman Gray School of Medicine.*

3:15 **338.** Lymphatic drainage of large particles. FRANK GOLLAN. *Thayer VA Hosp., Nashville, Tenn.*

3:30 **339.** Formation and binding of histamine in vitro. RICHARD W. SCHAYER. *Rheumatic Fever Research Inst., Chicago.* (Biochem.)

Kidney: Water Balance, Diuresis

TUESDAY, 1:15 P.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: Smith Freeman

1:15 **340.** Effects of glycyrrhiza on salt and water retention in rats. SHIRLEY D. KRAUS AND LEWIS H. KURTZ (intr. by WALTER M. BOOKER). *Howard Univ. Med. School.*

1:30 **341.** Ion excretion during acidosis and hypotheses of urinary acidification. WILLIAM A. BRODSKY. *Univ. of Louisville School of Medicine.*

1:45 **342.** Polarographic study of excreted complexes of mercurials. I. M. WEINER AND OTTO H. MÜLLER (intr. by O. W. SARTORIUS). *State Univ. of New York Upstate Med. Ctr.*

2:00 **343.** Diuretic properties of compounds of mercury. R. H. KESSLER* AND R. F. PITTS. *Cornell Univ. Med. College.*

2:15 **344.** Electrolyte and water diuresis produced by inactive N^6-substituted acetazoleamide analogs. WILLIAM B. SCHWARTZ, RICHARD PORTER AND ARNOLD S. RELMAN (intr. by E. B. ASTWOOD). *Tufts Univ. School of Medicine and Boston Univ. School of Medicine.*

2:30 **345.** Effect of Diamox on bicarbonate excretion during metabolic acidosis. ARNOLD S. RELMAN, G. JAMES TOBIAS AND WILLIAM B. SCHWARTZ (intr. by A. H. HEGNAUER). *Boston Univ. School of Medicine and Tufts Univ. School of Medicine.*

2:45 **346.** Diuretic effect of nitrate salts. EDWIN P. HIATT. *Univ. of North Carolina School of Medicine.*

3:00 **347.** Effect of a mercurial diuretic on oxidative phosphorylation in rat kidney mitochondria. ROGER L. GREIF AND GLORIA S. JACOBS (intr. by FREDERICK GUDERNATSCH). *Cornell Univ. Med. College.*

3:15 **348.** Water and electrolyte balance in adrenalectomized rats treated with cortisone and hydrocortisone. W. J. EVERSOLE. *Univ. of New Mexico.*

3:30 **349.** Contrasting effects of bicarbonate and Diamox, with equivalent alkalinization of urine, on silicylate uricosuria in man. A. B. GUTMAN,* T. F. YU* AND J. H. SIROTA. *Mt. Sinai Hosp. and Columbia Univ. College of Physicians and Surgeons.*

3:45 **350.** Association of anemia and hyperlipemia with experimental hypoproteinemia. SAMUEL A. CORSON AND ELIZABETH O. CORSON.* *Univ. of Arkansas School of Medicine.*

Respiration: Pulmonary Blood Flow and Diffusion

TUESDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: Andre Cournand

1:15 **351.** Nervous influences on pulmonary circulation. DOMINGO M. AVIADO, JR., ALBERT H. NIDEN* AND CARL F. SCHMIDT. *Univ. of Pennsylvania School of Medicine.* (Pharmacol.)

1:30 **352.** Measurement of spinal fluid gas tension. RICHARD F. HARVEY AND GEORGE A. SAXTON, JR. (intr. by VICTOR GUILLEMIN, JR.). *Univ. of Illinois College of Medicine.*

1:45 **353.** Oxygen diffusion coefficients in hemoglobin solutions of different concentrations. F. KREUZER (intr. by ROY P. FORSTER). *Univ. of Fribourg, Switzerland.*

2:00 **354.** Magnitude of $P_{A\overline{CO}_2}$, Pa_{CO_2} differences due to unequal ventilation-perfusion ratios between lobes. A. C. YOUNG, C. J. MARTIN* AND J. KOLER.* *Univ. of Washington School of Medicine and Firland Sanitarium.*

2:15 **355.** Pulmonary carbon monoxide uptake and diffusing capacity in patients with restricted pulmonary blood flow. G. M. TURINO,* M. BRANDFONBRENER* AND A. P. FISHMAN. *Columbia Univ.*

2:30 **356.** Estimation of pulmonary tissue volume and pulmonary capillary blood flow by analysis of respired soluble inert gases. L. CANDER* AND R. E. FORSTER. *Grad. School of Medicine, Univ. of Pennsylvania.*

2:45 **357.** Respiratory effects of aminophylline and Diamox alone and simultaneously in pulmonary emphysema. MORTON GALDSTON, JACK GELLER,* VINCENT HOLLIS, JR.* AND EVA LANDESMAN.* *New York Univ. Research Service, Goldwater Memorial Hosp.*

3:00 **358.** Effect of pneumothorax on pulmonary circulation in normal and vagotomized dogs. DANIEL H. SIMMONS* AND ALLAN HEMINGWAY. *Univ. of California Med. Ctr. and VA Ctr., Los Angeles.*

3:15 **359.** Ventilation-blood flow ratio differences between lungs of normal dogs. A. A. BECHTEL (intr. by J. F. MCCLENDON). *Hahnemann Med. College.*

Endocrines: Adrenal Cortex, Stress

TUESDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: George Sayers

1:15 **360.** Adrenocortical function in anesthetized dogs during and after pyrogenic stress. KRISTEN B. EIK-NES (intr. by LEO T. SAMUELS). *Univ. of Utah College of Medicine.* (Biochem.)

1:30 **361.** Relation of adrenal cortex to epinephrine conditioning. MAURICE S. GOLDSTEIN AND ESTELLE R. RAMEY. *Michael Reese Hosp. and Univ. of Chicago.*

1:45 **362.** Aldosterone secretion during bleeding. GORDON L. FARRELL, ROBERT S. ROSNAGLE AND ELIZABETH W. RAUSCHKOLB (intr. by J. M. WERLE). *Western Reserve Univ.*

2:00 **363.** Discharge of ACTH from adenohypophysis of adrenalectomized rat. GEORGE SAYERS. *Western Reserve Univ.*

2:15 **364.** Effect of hypothalamic lesions on adrenal ascorbic acid response to stress. MARGARET E. SLUSHER* AND SIDNEY ROBERTS. *Univ. of California Med. Ctr., Los Angeles.*

2:30 **365.** Influence of hypothalamico-hypophyseal portal vessel plasma on ACTH release. JOHN C. PORTER AND H. W. RUMSFELD, JR. (intr. by R. W. LACKEY). *Univ. of Texas Southwestern Med. School.*

2:45 **366.** Isolation from hypothalamus of substance which stimulates release of ACTH in vitro. ROGER GUILLEMIN, WALTER R. HEARN, WILLIAM R. CHEEK AND DWIGHT E. HOUSHOLDER (intr. by HEBBEL E. HOFF). *Baylor Univ. College of Medicine.*

3:00 **367.** Effect of carbon dioxide exposure on adrenal 17-hydro-oxycorticosteroid secretion in dogs. JOHN B. RICHARDS AND S. N. STEIN (intr. by T. L. WILLMON). *Naval Med. Research Inst.*

3:15 **368.** Biochemical and cytological effects of ACTH on surviving adrenocortical tissue. E. SCHÖNBAUM AND W. G. B. CASSELMAN (intr. by E. A. SELLERS). *Univ. of Toronto.*

3:30 **369.** Metabolism of cortisone in tissue slices. J. H. U. BROWN AND ATALANTE ANASON.* *Emory Univ.*

Physiology Society Business Meeting

TUESDAY, 4:00 P.M.—CONVENTION HALL, ROOM 21

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONVENTION HALL, BALLROOM

Program on page 628

Wednesday Morning, April 18, 9:00 a.m.

Brain: Metabolism, and Activity

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM F

Chairman: Chandler M. Brooks

9:00 **370.** Effect of temperature upon rate of cerebral energy requirement in neonatal rats. FREDERICK E. SAMSON, JR. AND NANCY DAHL (intr. by J. O. HUTCHENS). *Univ. of Kansas.*

9:15 **371.** Basic physiologic studies on normal children following mild chlorpromazine sedation. J. D. BUXBAUM,* L. M. PROUTT,* F. EHRLICH* AND R. H. OSTER. *School of Dentistry, Univ. of Maryland.*

9:30 **372.** Effects of lysergic acid diethylamide on the cerebral circulation and metabolism in man. LOUIS SOKOLOFF, SEYMOUR PERLIN,* CONAN KORNETSKY* AND SEYMOUR S. KETY. *Natl. Inst. of Mental Health.*

9:45 **373.** Disturbances in neural metabolism resulting from urinary products of phenylketonurics. EDWARD WALASZEK* AND L. G. ABOOD. *Univ. of Illinois College of Medicine.*

10:00 **374.** Metabolism of premature and full-term infant brain. WILLIAMINA A. HIMWICH, H. B. W. BENARON* AND BEATRICE E. TUCKER.* *Galesburg State Research Hosp. and Northwestern Med. School.*

10:15 **375.** Cytidine and uridine requirement of the brain. ALEXANDER GEIGER AND SEIICHIRO YAMASAKI.* *Univ. of Illinois.*

10:30 **376.** Influence of indoles on cerebral synaptic transmission. E. ROSS HART,* THOMAS W. LANGFITT* AND AMADEO S. MARRAZZI. *Army Chemical Ctr.*

10:45 **377.** Effects of curare and strychnine on components of evoked cortical potentials (cat). DOMINICK P. PURPURA AND HARRY GRUNDFEST (intr. by PAUL F. A. HOEFER). *Columbia Univ.*

11:00 **378.** Effect of sodium barbital and metrazol on adult brain cells in tissue culture. RUTH S. GEIGER (intr. by P. BAILEY). *Univ. of Illinois.*

11:15 **379.** Prevention of barbiturate withdrawal convulsions in cats by cerebral electrostimulation. C. F. ESSIG AND A. WIKLER.* *PHS Hosp., Ky.*

Heart: Coronary

WEDNESDAY, 9:00 A.M.—DENNIS, ST. DENNIS ROOM

Chairman: Seymour S. Kety

9:00 **380.** Hemodynamic determinants of coronary flow and myocardial O_2 consumption. R. B. CASE, S. J. SARNOFF, E. BRAUNWALD, W. N. STAINSBY AND Z. TAYLOR (intr. by J. L. WHITTENBERGER). *Natl. Heart Inst.*

9:15 **381.** Hemodynamic factors modifying relationship between ventricular filling pressure and myocardial oxygen consumption. E. BRAUNWALD,* S. J. SARNOFF, R. B. CASE,* W. N. STAINSBY* AND G. H. WELCH.* *Natl. Heart Inst.*

9:30 **382.** Heart pain: mechanisms and relief in relation to the small vessels of the heart and nerves. JOSEPH T. ROBERTS. *VA Hosp. and Univ. of Buffalo School of Medicine.*

9:45 **383.** Effects of increased cardiac work on coronary blood flow and left ventricular metabolism: nicotine. JERRY E. SCHMITTHENNER,* CECELIA RIEGEL AND JOSEPH H. HAFKENSCHIEL. *Lankenau Hosp.*

10:00 **384.** Effect of embolization via coronary arterial catheterization on coronary blood flow and coronary sinus blood oxygen saturation. J. W. WEST, T. KOBAYASHI, L. SCHLESINGER, F. S. ANDERSON AND S. M. BANNETT (intr. by C. F. SCHMIDT). *Univ. of Pennsylvania School of Medicine.* (Pharmacol.)

10:15 **385.** Effect of exercise and coronary arterial narrowing on growth of interarterial coronary anastomoses. RICHARD W. ECKSTEIN. *Western Reserve Univ. School of Medicine.*

10:30 **386.** Coronary blood flow at 20°C. JAMES R. JUDE, L. M. HAROUTUNIAN AND ROLAND FOLSE (intr. by DONALD F. PROCTOR). *Johns Hopkins Univ.*

10:45 **387.** Coronary blood flow and regulatory factors in normal, sympathectomized, vagectomized and atropinized dogs. T. A. BALOURDAS,* J. C. SCOTT AND W. B. MACGRATH.* *Hahnemann Med. College.*

11:00 **388.** Effect of vagal stimulation and acetylcholine on contractility of the ventricles and on coronary blood flow in dogs. ERIK BERGLUND, GUNTHER SCHREINER, FRANK DUFF AND HANS BORST (intr. by W. H. FORBES). *Harvard School of Public Health.*

11:15 **389.** Hypothermia and coronary blood flow. ROBERT M. BERNE. *Western Reserve Univ. School of Medicine.*

Electrolytes

WEDNESDAY, 9:00 A.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: W. S. Wilde

9:00 **390.** Iodine concentrating mechanism in frog skin. JOSEPH F. GENNARO, JR. AND MARGARET M. CLEMENTS (intr. by JAMES B. HAMILTON). *State Univ. of New York College of Medicine, Barnard College and Columbia Univ.*

9:15 **391.** Action of metabolic inhibitors and drugs on isolated frog skin. ERNST G. HUF. *Med. College of Virginia.*

9:30 **392.** Ionic relationships between muscle cells and surrounding connective tissue. THOMAS B. CALHOON (intr. by T. G. BERNTHAL). *Med. College of South Carolina.*

9:45 **393.** Demonstration of sodium in petroleum ether extracts of skeletal muscle of the dog. JOHN C. VANATTA, ROY M. LANDERS, JR.* *Univ. of Texas.*

10:00 **394.** Dietary minerals and vitamin E in mouse 'paralysis'. Y. CHIUNG PUH LEE,* JOSEPH T. KING AND MAURICE B. VISSCHER. *Univ. of Minnesota.*

10:15 **395.** Repolarization of frog ventricular fibers in low sodium. ALLAN J. BRADY* AND J. WALTER WOODBURY. *Univ. of Washington School of Medicine.*

10:30 **396.** Effects of chloretone and of azide on respiration and ionic content of frog nerves. W. P. HURLBUT,* TOMOAKI ASANO* AND F. BRINK. *Rockefeller Inst. of New York.*

10:45 **397.** Total body electrolyte in the rat. DONALD B. CHEEK* AND CLARK D. WEST. *Univ. of Cincinnati.*

11:00 **398.** Mineral requirements of mammalian cells grown in agitated fluid medium. OLGA V. H. OWENS,* MARGARET K. GEY* AND GEORGE O. GEY. *Johns Hopkins Med. School.*

11:15 **399.** Phosphate transfer in human erythrocyte ghosts. D. R. H. GOURLEY. *Univ. of Virginia Med. School.*

Physiology in Undergraduate Colleges

Session on Teaching

WEDNESDAY, 9:00 A.M.—MARLBOROUGH BLENHEIM, WEDGEWOOD ROOM

Chairman: C. L. Prosser

400. Functional biology in freshman courses. A. General Biology, E. J. BOELL (*Yale Univ.*); B. Human Physiology, CHARLOTTE HAYWOOD (*Mt. Holyoke College*).

401. Preprofessional courses—upper class levels. Principles versus special courses, DAVID FLEMING (*Univ. of Kansas*) AND C. L. PROSSER (*Univ. of Illinois*).

402. Goals and methods in undergraduate physiology. FRED SHERMAN (*Brown Univ.*).

403. Teacher background: demands for and sources of teachers. A. Teacher training, NORMA HAJEK NICHOLS (*Univ. of Iowa*); B. Research experience for teachers, S. R. TIPTON (*Univ. of Tennessee*).

404. Teachers and professional societies. E. F. ADOLPH (*Univ. of Rochester*).

Endocrines: Ovaries, Testes, Pregnancy

WEDNESDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: M. I. Grossman

9:00 **405.** Adrenocortical function during pregnancy. JOSEPH W. JAILER, DONALD LONGSON* AND NICHOLAS P. CHRISTY.* *College of Physicians and Surgeons. Columbia Univ.*

9:15 **406.** Adrenal cortical reserve and cortisol metabolism in normal and toxemic pregnancy. JOSEPHINE B. GARST, NICHOLAS S. ASSALI* AND MARGARET R. HENLEY.* *Med. Ctr., Univ. of California.* (Biochem.)

9:30 **407.** Ketosteroid excretion patterns in adrenogenital syndrome. MINORU MASUDA (intr. by HOMER WHEELON). *Univ. of Washington School of Medicine.*

9:45 **408.** Pregnancy in partially hepatectomized rats. K. E. PASCHKIS, A. CANTAROW AND J. STASNEY.* *Jefferson Med. College.*

10:00 **409.** Effect of castration and testosterone on weight of organs and individual muscles of fasting guinea pigs. CAROL TILLOTSON* AND C. D. KOCHAKIAN. *Oklahoma Med. Research Fndn.*

10:15 **410.** Effects of testosterone on removal

of dye-labeled protein from circulation. RITA L. PALDINO* AND CHESTER HYMAN. *Univ. of Southern California.*

10:30 **411.** New bioassay for urinary LH. M. X. ZARROW, E. S. E. HAFEZ* AND G. PINCUS. *Worcester Fndn. for Exptl. Biology, Shrewsbury.*

10:45 **412.** Ovarian nucleic acids in normal and hypothyroid rats after gonadotrophin administration. M. R. NOCENTI* AND J. H. LEATHEM. *Rutgers Univ.*

11:00 **413.** Time relationship between stimulation of the hypophysis and release of ovulating hormone in the rat. JOHN W. EVERETT. *Duke Univ. School of Medicine.*

11:15 **414.** Implantation in ovariectomized armadillos. G. D. BUCHANAN,* A. C. ENDERS,* ROY V. TALMAGE. *Rice Inst.*

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 8 of Convention Hall, where owners may claim them on proper identification.

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

Wednesday Afternoon, April 18, 1:15 p.m.

Neurophysiology

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM F

Chairman: Martin G. Larrabee

1:15 **415.** Action of repetitive nerve volleys and of botulinum toxin or miniature endplate potentials. V. B. BROOKS (intr. by B. DELISLE BURNS). *Australian Natl. Univ., Canberra.*

1:30 **416.** Trigemino-vagal connections in the cat. JOHN D. GREEN, JACOB DE GROOT* AND JEROME SUTIN.* *Univ. of Calif. at Los Angeles.*

1:45 **417.** Serial temporal and parietal lesions and discriminative learning in macaques. PEDRO PASIK,* TAUBA PASIK,* WILLIAM S. BATTERSBY* AND MORRIS B. BENDER. *Mt. Sinai Hosp., New York.*

2:00 **418.** Body motility during sleep and dream-duration recall. WILLIAM DEMENT* AND NATHANIEL KLEITMAN. *Univ. of Chicago.*

2:15 **419.** Effects of drugs on locomotor activity of monkeys. GEORGE D. DAVIS (intr. by LEON CHURNEY). *Louisiana State Univ.*

2:30 **420.** Tremor in African green monkeys. W. F. WINDLE, J. CAMMERMEYER,* E. R. FERINGA,* JANE JORALEMON,* J. O. SMART* AND M. P. MCQUILLEN.* *Natl. Inst. of Health.*

2:45 **421.** Analysis of position sense in humans. LEONARD A. COHEN (intr. by C. H. W. RUHE). *School of Medicine, Univ. of Pittsburgh.*

3:00 **422.** Structure of the Pacinian corpuscle. T. ANDREW QUILLIAM (intr. by JOHN FIELD II). *School of Medicine, Univ. of Calif. at Los Angeles, and VA Ctr., Los Angeles.*

3:15 **423.** Central pathways subserving weight discrimination in monkey. JUNE L. DEVITO* AND THEODORE C. RUCH. *Univ. of Washington School of Medicine.*

3:30 **424.** Physical properties of the human Tibia. F. GAYNOR EVANS AND MILTON LEBOW.* *Wayne Univ.*

Hemodynamics

WEDNESDAY, 1:15 P.M.—DENNIS, ST. DENNIS ROOM

Chairman: R. S. Alexander

1:15 **425.** Positive reflexes as a cause of vicious cycles in circulatory control systems. ARTHUR C. GUYTON AND ARTHUR W. LINDSEY.* *Univ. of Mississippi School of Medicine.*

1:30 **426.** Effect of elevation of intraluminal pressure on renal vascular resistance. FRANCIS J. HADDY. *Army Med. Research Lab., Fort Knox.*

1:45 **427.** Withdrawn.

2:00 **428.** Relations between a known volume pulse and resulting pressure pulse. JAMES H. R. SUTHERLAND (intr. by W. F. HAMILTON). *Med. College of Georgia.*

2:15 **429.** Reflected waves within the arterial system. L. H. PETERSON AND P. H. GERST.* *Univ. of Pennsylvania.*

2:30 **430.** Mechanical impedance to pulsatile blood flow in hind-limb of the dog. J. E. RANDALL* AND R. W. STACY. *Ohio State Univ.*

2:45 **431.** Relation of peripheral pulse pressure to cardiac stroke work and stroke volume. ISAAC STARR. *Univ. of Pennsylvania.*

3:00 **432.** In situ study of aortic elasticity in the dog. RICHARD W. LAWTON AND LEON C. GREENE.* *Aviation Med. Acceleration Lab. Johnsville, Pa. and Univ. of Pennsylvania School of Medicine.*

3:15 **433.** Phasic flow relationships in aorta. MERRILL P. SPENCER AND ADAM B. DENISON, JR. *Bowman Gray School of Medicine.*

3:30 **434.** Influence of anomalous viscosity of blood on resistance to flow. MATTHEW N. LEVY. *Albany Med. College.*

3:45 **435.** Withdrawn.

Transport of Electrolytes

WEDNESDAY, 1:15 P.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: R. Pitts

1:15 **436.** CO_2 effects on carbonic anhydrase activity and electrolytes of hypothalamus and cortex. K. E. SCHAEFER AND B. BARTON. *U. S. Naval Submarine Base, New London.*

1:30 **437.** Function of carbonic anhydrase in the alligator. ROLAND A. COULSON AND THOMAS HERNANDEZ.* *Louisiana State Univ. School of Medicine.* (Biochem.)

1:45 **438.** Ion fluxes in dog jejunum: active transport of chloride. P. GOLDMAN,* W. G. WALKER,* K. L. ZIERLER AND W. W. SCOTT. *Johns Hopkins Univ. and Hosp.*

2:00 **439.** Shifts of water and electrolyte content of rat renal cortical tissue in simple solutions in vitro. INGRITH DEYRUP. *Barnard College and Columbia Univ.*

2:15 **440.** Sodium and potassium exchanges across isolated thymus nuclei. S. ITOH* AND I. L. SCHWARTZ. *The Rockefeller Inst. for Med. Research.*

2:30 **441.** Actions of exogenous and endogenous histamine on cellular potassium. WILLIAM H. MACMILLAN (intr. by ROBERT L. DRIVER). *Univ. of Vermont College of Medicine.*

2:45 **442.** Measurement of ion flow across excitable and nonexcitable membranes of a single cell. ERNEST SCHOFFENIELS AND MARIO ALTAMIRANO (intr. by DAVID NACHMANSOHN). *College of Physicians and Surgeons. Columbia Univ.*

3:00 **443.** Spatially oriented heterogeneity of chloride exchange across epithelial cell surfaces of gastric mucosa. ERNEST COTLOVE* AND C. ADRIAN M. HOGBEN. *Natl. Heart Inst.*

3:15 **444.** Action of protamine on cellular electrolyte transport. E. C. FOULKES* AND BENJAMIN F. MILLER. *May Inst. for Med. Research, Univ. of Cincinnati.* (Biochem.)

3:30 **445.** Influence of concentration on active transport of sodium and potassium across the human erythrocyte membrane. ROBERT L. POST. *Vanderbilt Univ. School of Medicine.*

Metabolism of Liver, Enzymes

WEDNESDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: Willie W. Smith

1:15 **446.** Nature of C^{14}-compounds recovered in portal plasma during absorption of C^{14}-labeled hexoses. J. Y. KIYASU* AND I. L. CHAIKOFF. *Univ. of California School of Medicine, Berkeley.*

1:30 **447.** Effect of autoperfusion of liver on detoxication of thiopental sodium. A. M. RAPPAPORT, G. Y. HIRAKI, B. ROSENFELD, W. G. B. CASSELMAN, C. R. COWAN AND J. LANG. (intr. by D. A. SCOTT). *Univ. of Toronto.* (Biochem.)

1:45 **448.** Effects of dl-carnitine HCl on fatty acid oxidation by liver homogenates from choline-deficient rats. IRVING B. FRITZ (intr. by RACHMIEL LEVINE). *Michael Reese Hosp.*

2:00 **449.** Effect of uremia on rate of urea synthesis by rat liver slices. ALVIN L. SELLERS,* JOSEPH KATZ, SHELDON ROSENFELD* AND JESSIE MARMORSTON. *Cedars of Lebanon Hosp.* (Immunol.)

2:15 **450.** Glucuronidase activity in liver and kidney from animals exposed to low environmental temperature. M. E. DENISON AND R. L. JASPER (intr. by W. A. HIESTAND). *Army Med. Research Lab., Fort Knox.*

2:30 **451.** Effect of 2,4 dinitrophenol on hepatic clearance and extraction of rose bengal in dogs. B. COMBES, H. O. WHEELER, A. W. CHILDS AND O. L. WADE (intr. by H. B. VAN DYKE). *Columbia Univ.*

2:45 **452.** Pharmacologic doses of insulin on mouse liver NPSH. LYLE V. BECK AND ADELE M. BIANCONI.* *Univ. of Pittsburgh School of Medicine.*

3:00 **453.** Tyrosine oxidizing system of liver of young and fetal rats. NORMAN KRETCHMER AND HELEN MCNAMARA (intr. by HENRY L. BARNETT). *The New York Hosp.-Cornell Med. Ctr.*

3:15 **454.** System ascorbic acid dehydroascorbic acid in hepatic corticosteroid metabolism. HABEEB BACCHUS AND ALBERT F. DEBONS.* *George Washington Univ. School of Medicine.*

3:30 **455.** Inhibition of liver cell division and serum protein changes induced by dehydration in partially hepatectomized rats. ANDRE D. GLINOS (intr. by R. W. CLARKE). *Walter Reed Army Inst. of Med. Research.*

Endocrines: Thyroid

WEDNESDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: Estelle R. Ramey

1:15 **456.** Effect of epinephrine and norepinephrine on thyroidal release of thyroid

hormones in dogs. NORMAN B. ACKERMAN AND WALTER L. ARONS (intr. by J. E. RHOADS). *School of Medicine and Hosp., Univ. of Pennsylvania.*

1:30 **457.** Role of thyroxin, adrenal steroids and diet on restoration of protein and enzymes in regenerating liver of rats. SAMUEL R. TIPTON, C. W. MAJOR* AND J. L. SMOTHERS.* *Univ. of Tennessee.*

1:45 **458.** Influence of adrenal medulla on peripheral action of exogenous thyroxine. HAROLD BERNSTEIN,* MAURICE S. GOLDSTEIN AND ESTELLE R. RAMEY. *Univ. of Chicago.*

2:00 **459.** Metabolic effects of intravenously administered triiodothyronine in euthyroid human subjects. MARIAN C. ISAACS,* HELEN B. HOROWITZ,* BERNARD A. SACHS,* ALVIN ESSIG* AND RAYMOND E. WESTON. *Montefiore Hosp.*

2:15 **460.** Tissue protein-bound iodine in anterior and posterior lobes of bovine pituitary glands. WILLIAM C. FOSTER, J. F. MCCLENDON AND L. O. GILMORE.* *Hahnemann Med. College.*

2:30 **461.** Thyroxine analog effects on succinate and malate oxidation in vitro. S. B. BARKER AND W. J. LEWIS.* *Univ. of Alabama Med. Ctr.*

2:45 **462.** Thyroid activity of inbred strains of mice. JOHN B. LYON, JR. (intr. by H. D. BRUNER). *Emory Univ.*

3:00 **463.** Metabolic activity of 3,3′-diiodothyronine and 3,3′-diiodo-5-bromothyronine. CHALMERS L. GEMMILL. *Univ. of Virginia.* (Pharmacol.)

3:15 **464.** Metabolism of labeled thyroxine in perfused rabbit kidney in vitro. MONROE S. GLITZER,* JAMSON SYMCHOWICZ* AND JACK GROSS. *Brookhaven Natl. Lab. and State Univ. of New York College of Medicine.*

3:30 **465.** Factors in decline of basal metabolism with age. A. T. MILLER, JR. AND M. C. CONRAD.* *Univ. of North Carolina Med. School.*

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lobby of Convention Hall to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Thursday Morning, April 19, 9:00 a.m.

Neurophysiology: Reflexes

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM F

Chairman: Harry Grundfest

9:00 **466.** Galvanic skin reflex after acute spinal transection in normal and decerebrate cats. G. H. WANG (intr. by C. P. RICHTER). *Johns Hopkins Hosp.*

9:15 **467.** Neural pathways of conditioned reflexes to cortical stimulation. LESTER T. RUTLEDGE, JR.* AND ROBERT W. DOTY. *Univ. of Utah.*

9:30 **468.** Electromyographic study of abdominal reflexes in man. R. D. TEASDALL* AND J. W. MAGLADERY. *Johns Hopkins and Baltimore City Hosps.*

9:45 **469.** Is cuneate nucleus a simple monosynaptic relay? VAHE E. AMASSIAN. *USAF School of Aviation Medicine.*

10:00 **470.** Excitability changes in anatomical components of monosynaptic arc, after tetanic stimulation. A. R. JOHNSON,* P. D. WALL, J. Y. LETTVIN, W. S. MCCULLOCH AND W. PITTS.* *Massachusetts Inst. of Technology.*

10:15 **471.** Electrical studies of reflex patterns in intact animals. LAWRENCE STARK AND GILBERT H. GLASER (intr. by JOHN F. FULTON). *Yale Univ. School of Medicine.*

10:30 **472.** Viscero-motor reflexes in spinal animal. JOHN N. EBLE (intr. by I. M. KORR). *Kirksville College of Osteopathy and Surgery.*

10:45 **473.** Patterns of crossed spinal reflex activity. EDWARD R. PERL. *Upstate Med. Ctr., Syracuse.*

11:00 **474.** Effect of intra-arterial injections of epinephrine on spinal flexor and extensor reflexes. VICTOR J. WILSON (intr. by D. MCK. RIOCH). *Walter Reed Army Med. Ctr.*

11:15 **475.** Local cerebral blood flow in spreading cortical depression. R. R. SONNENSCHEIN AND R. M. WALKER.* *Univ. of California Med. Ctr., Los Angeles.*

Temperature Regulation: Hypothermia

THURSDAY, 9:00 A.M.—CONVENTION HALL, BALLROOM

Chairman: Victor E. Hall

9:00 **476.** Rates of cooling of rats in the cold. P. F. IAMPIETRO, E. R. BUSKIRK AND M. J. FREGLY (intr. by D. E. BASS). *QM Research and Develop. Command, Natick and Harvard Med. School.*

9:15 **477.** Maintenance of arterial pressure and cardiac output in hypothermic rat. R. W. BULLARD (intr. by E. F. ADOLPH). *Univ. of Rochester.*

9:30 **478.** Alterations in iodide metabolism during cold exposure. ALFRED INTOCCIA* AND L. VAN MIDDLESWORTH. *Univ. of Tennessee.*

9:45 **479.** Effects of induced cold torpor on hemoconcentration in Chrysemys picta. X. J. MUSACCHIA AND M. L. SIEVERS.* *St. Louis Univ.*

10:00 **480.** Renal responses to cold exposure of large vs. small dogs. WILLIAM C. NUNGESSER (intr. by BENJAMIN DEBOER). *Univ. of North Dakota School of Medicine.*

10:15 **481.** Function of blood-perfused dog kidney at low temperature. RODNEY B. HARVEY (intr. by VIRGINIA D. DAVENPORT). *Univ. of Utah.*

10:30 **482.** Effects of hypothermia on pulmonary function. J. W. SEVERINGHAUS AND M. STUPFEL (intr. by P. O. CHATFIELD). *Natl. Heart Inst.*

10:45 **483.** Pulmonary gas exchange in hypothermia. A. B. OTIS, JAMES R. JUDE* AND ROLAND FOLSE.* *Johns Hopkins Univ.*

11:00 **484.** Effects of cooling on central nervous system responses. ISAMU SUDA,* KIYOMI KOIZUMI* AND CHANDLER MCC. BROOKS. *State Univ. of New York College of Medicine.*

11:15 **485.** Revival of newborn mammals after being kept in ice for a few hours. M. C. CHANG. *Worcester Fndn. for Exptl. Biology.*

Heart: Electrical Activity, Fibrillation

THURSDAY, 9:00 A.M.—DENNIS, ST. DENNIS ROOM

Chairman: Louis N. Nahum

9:00 **486.** Cardiovascular response to prolonged, repetitive stimulation of stellate ganglion in the dog. WAYNE G. ROHSE* AND WALTER C. RANDALL. *Stritch School of Medicine, Loyola Univ.*

9:15 **487.** Graded response in dog heart muscle. B. F. HOFFMAN AND C. Y. KAO.*

State Univ. of New York College of Medicine at New York City.

9:30 **488.** Refractory and latent periods of premature ventricular systole. JOSEPH R. DIPALMA. *Hahnemann Med. College.*

9:45 **489.** Ventricular depolarization. ALLEN M. SCHER. *Univ. of Washington School of Medicine, Seattle.*

10:00 **490.** Initiation of ventricular tachycardia and fibrillation by rhythmical stimulation of ventricles of isolated rabbit hearts. LEONARD GRUMBACH (intr. by A. M. LANDS). *Sterling-Winthrop Research Inst.*

10:15 **491.** Effect of age on mean spatial QRS and T vectors. ERNST SIMONSON AND ANCEL KEYS. *Univ. of Minnesota.*

10:30 **492.** Short P-R interval and fixed coupling induced in dog by stimulation of sympathetic nervous system. SHEPPARD M. WALKER. *Univ. of Louisville School of Medicine.*

10:45 **493.** Acute hypokalemia and ventricular fibrillation. ABRAHAM CHERBAKOFF AND SEIICHI TOYAMA (intr. by J. W. REMINGTON). *Med. College of Georgia.*

11:00 **494.** 'Fusion' beats in experimental myocardial infarction. A. SIDNEY HARRIS AND RICHARD A. LIPTAK.* *Louisiana State Univ.*

11:15 **495.** Extent of effective 'vulnerable period' for transthoracic, high-energy, capacitor shocks in dogs. W. R. MILNOR AND W. B. KOUWENHOVEN (intr. by DAVID GROB). *Johns Hopkins Univ.*

Kidney: Regulation, Reabsorption

THURSDAY, 9:00 A.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: J. R. Elkinton

9:00 **496.** Relation between renal O_2 consumption, CO_2 production and hydrogen ion secretion. KATHLEEN E. ROBERTS, J. W. POPPELL AND HENRY T. RANDALL (intr. by E. F. DUBOIS). *Cornell Univ. Med. College.*

9:15 **497.** Additive effects of respiratory alkalosis, carbonic anhydrase inhibition and K on renal tubular reabsorption of bicarbonate. PARKER VANAMEE, FIDEL CUAJUNCO, JR., HENRY T. RANDALL AND KATHLEEN E. ROBERTS (intr. by R. W. RAWSON). *Cornell Univ. Med. College.*

9:30 **498.** Effect of blood pH and bicarbonate on renal reabsorption of Ca. BILLY JAMES WILLIAMSON* AND SMITH FREEMAN. *Northwestern Univ. Med. School.*

9:45 **499.** Homeostatis during antidiuresis. J. U. SCHLEGEL AND H. STONE.* *Univ. of Rochester.*

10:00 **500.** Effect of restricted water intake on urinary nitrogen output in man on low-calorie diet devoid of protein. FRANCISCO GRANDE,* JOSEPH T. ANDERSON,* HENRY L. TAYLOR AND ANCEL KEYS. *Univ. of Minnesota.*

10:15 **501.** Transient occlusion of renal artery and patterns of solute excretion. WILLIAM D. BLAKE. *Univ. of Oregon Med. School.*

10:30 **502.** Chronic, unilateral renal artery catheterization: differential sodium excretion in normal, unanesthetized dogs, and dogs with congestive heart failure. A. C. BARGER, A. M. RUDOLPH,* S. N. ROKAW* AND F. E. YATES.* *Harvard Med. School.*

10:45 **503.** Effects of constriction of carotid arteries on renal exchanges of water, Na and total solutes in unanesthetized, Ringer's infused dogs. J. STAMLER AND L. DREIFUS.* *Med. Research Inst., Michael Reese Hosp.*

11:00 **504.** Osmotic control of total body fluid volume. GEORGE D. ZUIDEMA, NEVILLE P. CLARKE AND MARY F. MINTON (intr. by JAMES P. HENRY). *Aero-Med. Lab., Wright-Patterson AFB.*

11:15 **505.** Central localization of osmotic control center. NEVILLE P. CLARKE, GEORGE D. ZUIDEMA AND MARY F. MINTON (intr. by RAYMOND F. KLINE). *Aero Med. Lab., Wright-Patterson AFB.*

11:30 **505a.** Body temperature during work in man on a restricted water intake and a low calorie, carbohydrate diet. J. EDGAR MONAGLE,* FRANCISCO GRANDE,* ELSWORTH BUSKIRK,* JOSEPH BROZEK, HENRY LONGSTREET TAYLOR AND ANCEL KEYS. *Univ. of Minnesota.*

11:45 **505b.** Water exchange in man in the presence of a restricted water intake and a low calorie carbohydrate diet. HENRY LONGSTREET TAYLOR, FRANCISCO GRANDE,* ELSWORTH BUSKIRK,* JOSEPH T. ANDERSON AND ANCEL KEYS. *Univ. of Minnesota.*

Altitude: Human Physiology

THURSDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: Harold E. Himwich

9:00 **506.** Variation in resting O_2 consumption throughout the day. E. R. BUSKIRK AND P. F. IAMPIETRO (intr. by AUSTIN HENSCHEL). *QM. Research and Develop. Ctr., Natick.*

9:15 **507.** Effect of weight reduction on

physiologic responses. JOHN SALZANO* AND W. W. TUTTLE. *State Univ. of Iowa.*

9:30 **508.** Anoretic responses to radiation and effect upon altitude tolerance. BERNARD D. NEWSOM* AND DONALD J. KIMELDORF. *U. S. Naval Radiological Defense Lab., San Francisco.*

9:45 **509.** Hemoglobin affinity and hypoxia tolerance in rats after exposure to low and high O_2 tensions and irradiation. J. N. BARKER (intr. by F. G. HALL). *Duke Univ. School of Medicine.*

10:00 **510.** Oxygen consumption and lactate production of rat diaphragms and liver slices before, during and following severe hypoxia. NORMAN R. ALPERT, JOSEPH R. DAVIS AND RODNEY W. ENGLAND (intr. by RAYMOND C. INGRAHAM). *Univ. of Illinois College of Medicine.*

10:15 **511.** Effects of high altitude exposures on dogs and their susceptibility to endocarditis. PAUL D. ALTLAND AND BENJAMIN HIGHMAN. *Natl. Inst. of Arthritis and Metabolic Diseases.*

10:30 **512.** Effects of altitude acclimatization on work capacity. BRUNO BALKE, J. G. WELLS AND JAMES P. ELLIS (intr. by HARRY F. ADLER). *USAF School of Aviation Medicine.*

10:45 **513.** Respiratory adaptations to chronic, high altitude hypoxia. HUGO CHIODI (intr. by R. D. DRIPPS). *Univ. Nacional de Tucuman, Argentina.*

11:00 **514.** Human stress response in contrasting aircraft operations. THADDEUS J. DOMANSKI (intr. by H. M. SWEENEY). *USAF School of Aviation Medicine.*

11:15 **515.** Effects of acute decompression stress upon plasma and urinary potassium in adrenalectomized dogs. FREDERICK P. FERGUSON AND DIETRICH C. SMITH. *Univ. of Maryland School of Medicine.*

Endocrines: Pitressin, Growth Hormone

THURSDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: Gregory Pincus

9:00 **516.** Steroid-vasopressin interactions. J. J. CHART* AND ROBERT GAUNT. *Ciba Pharmaceutical Products Inc.*

9:15 **517.** Histamine-like component of commercial Pitressin active in releasing ACTH. WALTER BARRETT,* W. W. SWINGLE, L. J. BRANNICK, S. J. LEBRIE* AND A. F. PARLOW.* *Princeton Univ.*

9:30 **518.** Effect of vasopressin on plasma 17-hydroxycorticosteroid levels. ROGER K. MCDONALD AND VIRGINIA K. WEISE.* *Natl. Inst. of Mental Health.*

9:45 **519.** Sequelae of hypophysectomy in dogs with reference to the pancreas. A. TAYLOR,* H. E. ESSEX AND G. A. WRENSHALL.* *Mayo Clinic, and Univ. of Toronto.*

10:00 **520.** Effects of growth hormone of primate origin in hypophysectomized rhesus monkeys. ERNEST KNOBIL AND ROY O. GREEP. *Harvard Med. School and Biological Research Lab.*

10:15 **521.** Increased growth hormone activity in plasma of pregnant rats. ALEX N. CONTOPOULOS* AND MIRIAM E. SIMPSON. *Univ. of California.*

10:30 **522.** Metabolic and trophic effects of human pituitary glands. HERBERT GERSHBERG, MALCOLM S. DRUSKIN* AND MILTON AGULNEK.* *New York Univ. College of Medicine.*

10:45 **523.** Effects of growth hormone in hypophysectomized and normal dogs. L. CHAIKOF,* R. ZEMEL,* G. A. WRENSHALL,* J. MARKOWITZ AND J. CAMPBELL. *Banting and Best. Dept. of Med. Research, Univ. of Toronto.*

11:00 **524.** Variable continued growth in puppies after total hypophysectomy. A. D. KELLER AND D. M. WITT.* *Army Med. Research Lab., Fort Knox.*

11:15 **525.** Endocrine responses during adaptation to moderately high altitude. PAOLA S. TIMIRAS,* ADRIENNE A. BATTS,* GEORGE W. HOLLINGER,* RALPH KARLER,* ALVIN A. KRUM* AND NELLO PACE. *Univ. of California and the White Mountain Research Station.*

Thursday Afternoon, April 19, 1:15 p.m.

Vision

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM F

Chairman: H. K. Hartline

1:15 **526.** Nature of gecko visual pigment. FREDERICK CRESCITELLI. *Univ. of California, Los Angeles.*

1:30 **527.** Color-shift response in turtle retina related to difference in wave length. ALEXANDER FORBES, CHRISTINA ENROTH,* MARJORIE NEYLAND,* MARY SUSAN GONGAWARE* AND HELEN W. DEANE.* *Harvard Univ.*

1:45 **528.** Inhibitory interaction in eye of Limulus. FLOYD RATLIFF* AND H. K. HARTLINE. *Rockefeller Inst.*

2:00 **529.** Observation of rabbit fundus oculi. HERBERT SHAPIRO. *Wills Eye Hosp., Philadelphia.*

2:15 **530.** Vascular factor in visual accommodation. DAVID G. FLEMING (intr. by O. O. STOLAND). *Univ. of Kansas.*

2:30 **531.** Cortical eye motor fields of the cat. ELLIS C. BERKOWITZ AND J. TREVOR SILVERSTONE (intr. by ROBERT B. LIVINGSTON). *Univ. of California, Los Angeles.*

2:45 **532.** Types of posttetanic potentiation in auditory and visual systems. JOHN R. HUGHES (intr. by I. TASAKI). *Natl. Inst. of Mental Health.*

3:00 **533.** Photic potentials in visual pathway during 'attention' and photic 'habituation.' R. HERNANDEZ-PEON, C. GUZMAN-FLORES, M. ALCARAZ AND A. FERNANDEZ-GUARDIOLA (intr. by J. J. IZQUIERDO). *School of Medicine, Univ. of Mexico.*

3:15 **534.** Prolonged changes in lateral geniculate potentials following optic nerve tetanization. EDWARD V. EVARTS,* JOHN R. HUGHES* AND WADE H. MARSHALL. *Natl. Inst. of Mental Health.*

3:30 **535.** Frontal corticofugal pathways for eye movements. IRVING H. WAGMAN, HOWARD P. KRIEGER* AND MORRIS B. BENDER. *Mt. Sinai Hosp., New York.*

Acclimatization to Cold: Hibernation

THURSDAY, 1:15 P.M.—CONVENTION HALL, BALLROOM

Chairman: Steven M. Horvath

1:15 **536.** Effect of previous cold acclimatization in rats shocked by clamping technique. R. E. HAIST, H. SCHACHTER,* S. SIDLOFSKY,* J. R. HAMILTON* AND D. G. BAKER.* *Univ. of Toronto.*

1:30 **537.** Chemical regulation of heat production in cold-adapted rats. WALTER COTTLE* AND LOREN D. CARLSON. *Univ. of Washington School of Medicine, Seattle.*

1:45 **538.** Effect of temperature on interrelations between thyroxin and adrenaline. HEIDI E. SWANSON (intr. by H. N. HARKINS). *Univ. of Washington School of Medicine.*

2:00 **539.** Fatty acid synthesis from dietary carbohydrate in relation to cold exposure. E. J. MASORO AND C. L. ASUNCION.* *Tufts Univ. School of Medicine.*

2:15 **540.** Metabolic response of warm and cold acclimated rats to very cold environments. FLORENT DEPOCAS (intr. by E. PAGE). *Natl. Research Labs., Ottawa.*

2:30 **541.** Capillary counts in organs of warm and cold acclimated rats. O. HEROUX (intr. by J. S. HART). *Natl. Research Labs., Ottawa.*

2:45 **542.** Tissue oxygen consumptions of rats adapted to cold. A KURT WEISS (intr. by W. GLEN MOSS). *Howard Hughes Med. Inst. and Univ. of Miami School of Medicine.*

3:00 **543.** Effect of estrogen and ethionine on cold-induced fatty liver of rats. R. L. JASPER (intr. by G. W. MOLNAR). *Army Med. Research Lab., Fort Knox.*

3:15 **544.** Body temperature variations of nonhibernating Alaskan ground squirrels. RAYMOND J. HOCK. *Arctic Aeromedical Lab., Fairbanks, Alaska.*

3:30 **545.** Serum magnesium and hibernation. M. L. RIEDESEL* AND G. E. FOLK, JR. *Univ. of Pittsburgh and State Univ. of Iowa.*

3:45 **546.** Respiratory rate patterns of hibernation in 13-lined ground squirrel. BARBARA R. LANDAU AND ALBERT R. DAWE (intr. by W. B. YOUMANS). *Univ. of Wisconsin.*

Muscle: Contraction, Energy Metabolism

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM 13

Chairman: V. Lorber

1:15 **547.** Muscle and liver cytochrome oxidase activity in rats and large animals. H. O. KUNKEL. *Texas A. and M. College System, College Station.* (Biochem.)

1:30 **548.** Lean body weight (LBW) and body weight from anthropometric measurements. ALBERT R. BEHNKE. *U. S. Naval Radiological Defense Lab., San Francisco.*

1:45 **549.** Carbohydrate metabolism of skeletal muscle in man during the night. REUBIN ANDRES AND KENNETH L. ZIERLER. *Johns Hopkins Univ. and Hosp.*

2:00 **550.** Effect of warming-up on physical performance. PETER V. KARPOVICH AND CREIGHTON J. HALE.* *Springfield College, Springfield, Mass.*

2:15 **551.** Effects of intermittent compression and of electric stimulation on denervation atrophy. KHALIL G. WAKIM. *Mayo Clinic.*

2:30 **552.** Responses of human adductor pollicis to indirect paired stimuli. STELLA BOTELHO, RHETA ADAMS* AND LEON CANDER.* *Grad. School of Medicine, Univ. of Pennsylvania.*

2:45 **553.** Multiple components of single motor units. J. S. DENSLOW, M. O. GUTENSOHN,* J. A. CHACE* AND M. G. KUMM.* *Biomechanics Lab., Kirksville College of Osteopathy and Surgery.*

3:00 **554.** Potassium effect on resting membrane potential of muscle in intact rats. J. C. HARVEY,* J. L. LILIENTHAL, JR. AND K. L. ZIERLER. *Johns Hopkins Univ. and Hosp.*

3:15 **555.** Histochemical characterization of skeletal muscle after disuse by immobilization. LILLIAN EICHELBERGER AND MICHAEL ROMA.* *Univ. of Chicago.* (Biochem.)

3:30 **556.** Electrical correlates of human uterus in labor. S. D. LARKS (intr. by W. A. SELLE). *School of Medicine, Univ. of California, Los Angeles.*

Hypertension

THURSDAY, 1:15 P.M.—DENNIS, ST. DENNIS ROOM

Chairman: A. C. Corcoran

1:15 **557.** Evidence for existence of pressor and oxytocic active peptides in angiotonin preparations. F. M. BUMPUS AND H. J. SCHWARZ (intr. by IRVINE H. PAGE). *Cleveland Clinic Fndn. and the Frank E. Bunts Educational Inst.* (Biochem.)

1:30 **558.** Use of rabbit aortic strips to biologically differentiate two forms of angiotonin. O. M. HELMAR. *Lilly Lab. for Clin. Research, Indianapolis.* (Biochem.)

1:45 **559.** Effect of variation of ambient temperature on spontaneous running activity of normal and hypertensive rats. MELVIN J. FREGLY. *Harvard Med. School.*

2:00 **560.** Inheritance of blood pressure and relationship to mortality in chickens. PAUL D. STURKIE, R. K. RINGER* AND H. S. WEISS.* *Rutgers Univ.*

2:15 **561.** Influence of somatotrophic hormone (STH) on organ weights and blood pressure in normal and nephrectomized rats. DARRELL A. JAQUES, RUTH B. MCVAUGH, W. F. KEITZER AND P. A. RONDELL. (intr. by D. F. BOHR). *Univ. of Michigan.*

2:30 **562.** Effect of arterial pressure level on site of development of arteriolar necrosis in dogs with malignant hypertension. ERNEST L. HOPKINS,* ROBERT S. JASON* AND EDWARD W. HAWTHORNE. *College of Medicine, Howard Univ.*

2:45 **563.** Renoprival hypertension in totally sympathectomized dogs. C. R. HOUCK. *Univ. of Tennessee Med. Units.* (Author deceased, paper given by R. R. OVERMAN.)

3:00 **564.** Treatment and prophylaxis of experimental renal hypertension in monkeys with renins and antirenins. M. H. FRANK,* L. GRAHAM* AND G. E. WAKERLIN. *Univ. of Illinois College of Medicine.*

3:51 **565.** Effects of diverting renal and adrenal vein blood into portal vein upon kidney function and Goldblatt hypertension in dogs. W. G. KUBICEK AND A. P. THAL.* *Univ. of Minnesota.*

3:30 **566.** Pressor activity of plasma on prolonged incubation. G. M. C. MASSON AND A. C. CORCORAN. *Cleveland Clinic Fndn.*

Blood Volume: Methods, Expanders

THURSDAY, 1:15 P.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: Walter C. Randall

1:15 **567.** Erythrocyte and plasma volumes in goats. RUBERT S. ANDERSON AND E. B. ROGERS.* *Army Chemical Ctr.*

1:30 **568.** Induced hypoxia and central

blood volume of normal man. H. W. FRITTS, JR.,* E. BRAUNWALD,* A. P. FISHMAN AND A. COURNAND. *Columbia Univ.*

1:45 **569.** Left atrial and systemic arterial dilution curves after injection of indicator into left and right heart in man. JOHN R. KEYS,* H. J. C. SWAN, PETER S. HETZEL* AND EARL H. WOOD. *Mayo Clinic.*

2:00 **570.** Arterial-dilution curves of Evans blue and methylene blue. IRWIN J. FOX,* WILLIAM P. CROWLEY, JR.,* JOSEPH B. GRACE* AND EARL H. WOOD. *Mayo Clinic.*

2:15 **571.** Simultaneous determination of red cell volume using radioiron and radiochromate. LEON KRAINTZ,* E. L. SMITH AND R. A. HUGGINS. *Univ. of Texas and Baylor Univ. College of Medicine.*

2:30 **572.** Determining plasma volume of animals with dextran. ROBERT E. SEMPLE. *Queens Univ., Kingston, Canada.*

2:45 **573.** Radiosulfate space in tissue. FREDERIC KAVALER (intr. by DAYTON J. EDWARDS). *Cornell Univ. Med. College.*

3:00 **574.** Plasma volume and vascular protein permeability. W. GORDON WALKER AND RICHARD S. ROSS (intr. by A. MCGEHEE HARVEY). *Johns Hopkins Univ. and Hosp.*

3:15 **575.** Capillary resistance after macromolecular infusions. V. G. BEHRMANN AND F. W. HARTMAN.* *Henry Ford Hosp., Detroit.*

3:30 **576.** Effects of storage temperature on certain physical-chemical properties of glycerol pectate. GEORGE A. FEIGEN, IGNATIUS L. TRAPANI* AND MARY S. HURD.* *Stanford Univ.*

3:45 **576a.** Orthostatic venoconstriction studied by a miniature balloon technique. EDWIN W. SALZMAN AND SIDNEY D. LEVERETT, JR. (intr. by H. O. PARRACK). *Aero Med. Lab.*

Respiration: Hypoxia, Altitude

THURSDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: E. F. Adolph

1:15 **577.** Effects of diminishing oxygen tension of inspired air on dilution of labels intravenously injected. G. C. RING AND W. G. MOSS. *Univ. of Miami School of Medicine and Howard Hughes Med. Inst.*

1:30 **578.** Acute hypoxia and pulmonary circulation of dogs during apnea. G. G. NAHAS (intr. by GEORGE FAHR). *Univ. of Minnesota.*

1:45 **579.** Relationship of oxygen debt to blood lactate and pyruvate. W. E. HUCKABEE* AND JULIUS SENDROY, JR. *Naval Med. Research Inst.*

2:00 **580.** Anoxia in relation to refrigeration, pregnancy and reticuloendothelial system. STELIOS C. SAMARAS, OTTO J. KLINGER* AND B. CARL RUSSUM.* *Creighton Univ. School of Medicine.*

2:15 **581.** Resuscitation in the newborn. S. CASSIN (intr. by C. E. HALL). *Univ. of Texas Med. Branch.*

2:30 **582.** Measurement of tissue gas tensions utilizing gas pockets. HUGH D. VAN LIEW (intr. by J. R. MURLIN) *Univ. of Rochester School of Medicine and Dentistry.*

2:45 **583.** Behavior of pneumothorax gas at sea level and altitude. HERMANN RAHN AND TULIO VELASQUEZ.* *Univ. of Rochester School of Medicine and Dentistry, and Inst. of Andean Biology, Lima, Peru.*

3:00 **584.** Chemical analyses of human postmortem tissues in determining physiological status of flying personnel prior to aircraft accidents. ROBERT T. CLARK, JR., S. S. WILKS* AND DONALD D. VAN FOSSAN.* *USAF School of Aviation Medicine, Texas.*

3:15 **585.** Chemical analyses of post-mortem tissues in determining physiological status of flying personnel prior to aircraft accidents. S. S. WILKS, DONALD D. VAN FOSSAN AND ROBERT T. CLARK, JR. (intr. by E. A. BLAIR). *USAF School of Aviation Medicine, Texas.*

3:30 **586.** Lactic acid analysis of post-mortem brain tissue in determination of physiological condition prior to accidental death. DONALD D. VAN FOSSAN, SYRREL S. WILKS AND ROBERT T. CLARK, JR. (intr. by HERMAN S. WIGODSKY). *USAF School of Aviation Medicine, Texas.*

Endocrines: ACTH, Adrenals

THURSDAY, 1:15 P.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: J. B. Collip

1:15 **587.** Direct effect of ACTH on capillary permeability in inflammation. VALY MENKIN. *Temple Univ. School of Medicine.*

1:30 **588.** Comparison of renal and hepatic effects of fasting and cortisone in adrenalectomized rats. E. RUDOLF FROESCH, JAMES ASHMORE AND ALBERT E. RENOLD (intr. by GEORGE W. THORN). *Harvard Med. School.*

1:45 **589.** Stress response in a poikilotherm. ROLAND M. NARDONE AND RICHARD ST. JOHN (intr. by C. TUM SUDEN). *Catholic Univ., Washington, D. C.*

2:00 **590.** Influence of adrenal on distribution and excretion of electrolytes. KENDRICK HARE AND RUTH S. HARE.* *Univ. of Alabama.*

2:15 **591.** Concentration of Na, K and hydrocortisone in plasma of adrenalectomized and intact dogs subjected to surgical trauma. LEONARD SHARE AND HARVEY KRIEGER (intr. by H. GOLDBLATT). *Western Reserve Univ. School of Medicine.*

2:30 **592.** Isolations of alpha-ketolic steroids from normal urine. JOSEPH C. TOUCHSTONE,* HELEN BULASCHENKO,* EDWIN M. RICHARDSON* AND F. CURTIS DOHAN. *Univ. of Pennsylvania.*

2:45 **593.** Adrenocortical inhibition by amphenone 'B'. GEORGE ROSENFELD AND WILLARD D. BASCOM (intr. by E. HARDENBERGH). *Naval Med. Research Inst.*

3:00 **594.** LSD and urinary inorganic phosphate excretion. JOHN R. BERGEN AND NORMAN E. BEISAW.* *Worcester Fndn. for Exptl. Biology, Shrewsbury.*

3:15 **595.** Adrenal in premature anencephalic fetus. JOHN NICHOLS. *Yale Univ.*

3:30 **596.** Electroencephalographic changes in cats associated with antidiuretic response to intracarotid injection of hypertonic solutions. GEORGE R. FULLER* AND CHARLES H. SAWYER. *Univ. of California, Los Angeles.*

Physiology Society Business Meeting

THURSDAY 4:00 P.M.—CONVENTION HALL, ROOM 21

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

Friday Morning, April 20, 9:00 a.m.

Hearing: Sense Organs

FRIDAY, 9:00 A.M.—CONVENTION HALL ROOM F

Chairman: Hallowell Davis

9:00 **597.** Response of single medial geniculate units to repetitive click stimuli. VERNON G. VERNIER* AND ROBERT GALAMBOS. *Walter Reed Army Med. Ctr.*

9:15 **598.** Electrical response to sound in noctuid moth nerves. ASHER E. TREAT* AND KENNETH D. ROEDER. *City College of New York and Tufts Univ.*

9:30 **599.** EEG arousal produced by significant tones. VERNON ROWLAND (intr. by DONALD B. LINDSLEY). *Schools of Medicine, Univ. of California at Los Angeles and Western Reserve Univ.*

9:45 **600.** Responses from auditory cortex to repeated bursts of noise. NELSON YUAN-SHENG KIANG, MOISE H. GOLDSTEIN, JR. (intr. by S. S. STEVENS). *Massachusetts Inst. of Technology.*

10:00 **601.** Auditory cortical response to medial geniculate stimulation. CURT VON EULER (intr. by H. W. MAGOUN). *Univ. of California at Los Angeles and VA Hosp., Long Beach.*

10:15 **602.** Reversible frequency-selective reduction by cold of round window potentials. ALFRED H. CHAMBERS AND GEORGE G. LUCCHINA.* *Univ. of Vermont College of Medicine.*

10:30 **603.** Potentiation of auditory cortical responses to medial geniculate stimulation. GIANFRANCO RICCI AND WALTER ROSENBLITH (intr. by CLARA M. SZEGO). *Univ. of California at Los Angeles, VA Hosp., Long Beach and Massachusetts Inst. of Technology.*

10:45 **604.** Efferent impulses to the nasal area. DON TUCKER AND LLOYD M. BEIDLER (intr. by DEXTER M. EASTON). *Florida State Univ.*

11:00 **605.** Olfactory and trigeminal nerve responses to odors. LLOYD M. BEIDLER AND DON TUCKER.* *Florida State Univ.*

Gastric Secretion

FRIDAY, 9:00 A.M.—CONVENTION HALL, BALLROOM

Chairman: J. P. Quigley

9:00 **606.** Barrier offered by gastric mucosa to absorption of sodium. CHARLES F. CODE, JOHN A. HIGGINS* AND ALAN L. ORVIS.* *Mayo Fndn. and Mayo Clinic, Rochester.*

9:15 **607.** Passage of K from gastric contents to blood stream. HANNS C. MOLL, CHARLES F. CODE AND ALAN L. ORVIS (intr. by EDWARD J. BALDES). *Mayo Fndn. and Mayo Clinic, Rochester.*

9:30 **608.** Inorganic phosphate and gastric acid secretion in vitro. HORACE W. DAVENPORT. *Univ. of Utah.*

9:45 **609.** Paper-electrophoretic analysis of gastric juice. GEORGE B. JERZY GLASS, LOUKIA STEPHANSON* AND MARILYN RICH.* *New York Med. College.*

10:00 **610.** Active transport of sodium ion in nonacid secreting stomach. WARREN H. DENNIS,* ALAN M. BORNSTEIN* AND WARREN S. REHM. *Univ. of Louisville School of Medicine.*

10:15 **611.** Acid secretion by perfused stomach. M. H. F. FRIEDMAN AND H. APPERT.* *Jefferson Med. College.*

10:30 **612.** Elimination of carbon^{14}-bicarbonate after introduction into stomach of the rat. F. R. STEGGERDA AND D. R. ASHER.* *Abbott Labs., Chicago.*

10:45 **613.** Gastric secretion of basic dyes. F. E. RAY (intr. by MICHAEL KLEIN). *Univ. of Florida.* (Pathol.)

11:00 **614.** Chloride transport and gastric acid secretion. REICH HEINZ AND RICHARD P. DURBIN.* *Tufts Med. School.* (Biochem.)

11:15 **615.** Causes of basal secretion of HCl in the dog. FRANKLIN HOLLANDER AND VERNON A. WEINSTEIN.* *Mt. Sinai Hosp., New York City.*

Erythrocytes

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM 20

Chairman: M. H. Jacobs

9:00 **616.** A rapid procedure for erythrocyte sedimentation and hematocrit studies and

some resulting distribution values in healthy and diseased populations. V. T. RILEY AND W. C. VALLES (intr. by M. B. ZUCKER). *Sloan Kettering Inst. for Cancer Research.*

9:15 **617.** Diffusion of water into human red cells in vitro. C. V. PAGANELLI AND A. K. SOLOMON (intr. by JOHN R. PAPPENHEIMER). *Harvard Med. School.*

9:30 **618.** Influence of temperature, anaerobiosis, iodoacetate and cyanide on phosphate release from dog erythrocyte. JOHN M. GINSKI,* JOHN F. THOMSON* AND AKIRA OMACHI. *Argonne Natl. Lab., Loyola Univ.*

9:45 **619.** Effect of cardiac glycosides on K transport in human red cells. A. K. SOLOMON, THOMAS J. GILL III* AND G. LENNARD GOLD.* *Harvard Med. School.*

10:00 **620.** Na and K alterations in red cells of patients with sicklemia. JOHN Q. ADAMS (intr. by S. R. BRUESCH). *Univ. of Tennessee College of Medicine.*

10:15 **621.** Cation recovery in red cells after butyl alcohol treatment. JAMES W. GREEN (intr. by MARION A. REID). *Rutgers Univ.*

10:30 **622.** Effects of nucleosides on resistance of normal human erythrocytes to osmotic lysis. BERTRAM A. LOWY, ERNST R. JAFFÉ, GRACE A. VANDERHOFF, PHILIP AISEN AND IRVING M. LONDON (intr. by GEORGE BOSWORTH BROWN). *Albert Einstein College of Med., Yeshiva Univ.* (Biochem.)

11:00 **623.** Life span of nucleated erythrocytes with C^{14}. KIRKLAND C. BRACE AND PAUL D. ALTLAND (intr. by H. SPECHT). *Natl. Cancer Inst. and Natl. Inst. of Arthritis and Metabolic Diseases.*

11:15 **624.** Effect of anemic rabbit plasma on erythropoiesis in the rat. W. H. LINKENHEIMER,* W. C. GRANT AND H. BERGER.* *American Cyanamid Co., Lederle Labs.*

11:30 **625.** Effect of cooling and rewarming velocities in the prevention of hemolysis by freezing. P. M. GEHENIO* AND B. J. LUYET. *St. Louis Univ.*

11:45 **626.** Separation of formed elements of blood with the Cohn blood fractionator. KEITH H. KELLY,* HOWARD R. BIERMAN, FAUNO L. CORDES* AND HARRIET WATSON.* *City of Hope Med. Ctr., Duarte, Calif.* (Pharmacol.)

12:00 **627.** Lysis of dog erythrocytes in mildly alkaline isotonic media. WILLIAM J. WADDELL (intr. by THOMAS C. BUTLER). *Univ. of North Carolina.* (Pharmacol.)

Effects of Temperature, Calorimetry

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM 11

Chairman: W. G. Kubicek

9:00 **628.** Effect of environmental temperature rhythms on blood and serum volumes and body water in dairy cattle. HOMER E. DALE,* SAMUEL BRODY AND GLORIA J. BURGE.* *Univ. of Missouri.*

9:15 **629.** Skin temperature changes during production of experimental frostbite. ROBERT A. WOLBACH,* JOSEPH R. BLAIR, THOMAS B. ROOS* AND WILLIAM F. STRAUSS.* *Harvard Med. School.*

9:30 **630.** Correlations between skin temperature and blood flow in the dog foot. H. E. EDERSTROM, T. VERGEER,* RUSSELL RHODE* AND PAUL AHLNESS.* *Univ. of North Dakota Med. School.*

9:45 **631.** Peripheral venous responses to environmental temperature change in man. J. E. WOOD AND J. W. ECKSTEIN (intr. by E. M. FOLLENSBY). *Boston Univ. School of Med.* (Immunol.)

10:00 **632.** Infrared emissivities of some Arctic fauna. H. T. HAMMEL (intr. by MARGARET MCCOUCH). *School of Medicine Univ. of Pennsylvania.*

10:15 **633.** Effects of absorbency of clothing materials. ALAN H. WOODCOCK AND RICHARD L. PRATT.* *QM. Research and Development Ctr., Natick.*

10:30 **634.** Heat losses from the human head in the cold. GERD FROESE* AND ALAN C. BURTON. *Med. School, Univ. of Western Ontario.*

10:45 **635.** A human calorimeter. T. H. BENZINGER, R. G. HUEBSCHER,* DAVID MINARD AND CHARLOTTE KITZINGER.* *Naval Med. Research Inst.*

11:00 **636.** Human gradient calorimeter. DAVID MINARD, T. H. BENZINGER AND CHARLOTTE KITZINGER.* *Naval Med. Research Inst.*

11:15 **637.** Efferent discharge in brain stem during shivering. LUCY BIRZIS (intr. by V. E. HALL). *Univ. of California at Los Angeles.*

Cellular and Comparative Physiology

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM 13

Chairman: A. K. Parpart

9:00 **638.** Water compartments in a cephalopod mollusc. ARTHUR W. MARTIN, FLORENCE

M. HARRISON* AND JAMES D. ROBERTSON.* *Univ. of Washington and Univ. of Glasgow.*

9:15 **639.** Paper electrophoresis of animal hemoglobins. GERALD P. RODNAN AND FRANKLIN G. EBAUGH, JR. (intr. by JACK D. MYERS). *Natl. Insts. of Health.*

9:30 **640.** Sedimentability of nucleoproteins in homogenates of perfused rat liver. PAUL R. GROSS AND WILLIAM PEARL (intr. by O. M. HELFF). *Univ. College, New York Univ.*

9:45 **641.** Kinetics of release of radioactive substances from frog heart. JOHN A. JOHNSON. *Univ. of Minnesota.*

10:00 **642.** Bacterial luciferase preparations. MILTON J. CORMIER (intr. by C. W. SHEPPARD). *Oak Ridge Natl. Lab.*

10:15 **643.** Effectiveness of visible spectrum in controlling growth and differentiation of fern prothallia. WILLIAM J. CROTTY AND SYLVIA FRANK (intr. by MALVINA SCHWEIZER). *Washington Square College, New York Univ.*

10:30 **644.** Mitoses in pinna and interscapular epidermis of mice in relation to physiologic 24-hr. periodicity. A. P. CHAUDHRY,* F. HALBERG AND J. J. BITTNER* *Univ. of Minnesota and Cambridge State School and Hosp.*

10:45 **645.** Blood chemical differences between Hereford and Angus cattle. HUGO KRUEGER, M. A. MACDONALD* AND RALPH BOGART.* *Oregon State College.*

11:00 **646.** Enzymes and amphibian metamorphosis. EARL FRIEDEN (intr. by DONALD H. COOK). *Florida State Univ.* (Biochem.)

11:15 **647.** Induction of sexual differentiation in hydra by a volatile chemical or gas. W. F. LOOMIS, *Loomis Lab., Greenwich, Conn.* (Biochem.)

11:30 **648.** Decreased growth of fruit fly larvae during and after exposure to high g fields. CHARLES C. WUNDER (intr. by CHARLES J. IMIG). *State Univ. of Iowa.*

Circulation, Adrenaline, Noradrenaline

FRIDAY, 9:00 A.M.—DENNIS, ST. DENNIS ROOM

Chairman: Mark Nickerson

9:00 **649.** Excretion of epinephrine and norepinephrine in various emotional states. FRED ELMADJIAN, JUSTIN M. HOPE* AND EDWIN T. LAMSON.* *Worcester Fndn. and Worcester State Hosp.*

9:15 **650.** Vascular reactivity to epinephrine after sympathectomy. T. COOPER, V. L. WILLMAN AND A. B. HERTZMAN (intr. by A. W. RICHARDSON). *St. Louis Univ.*

9:30 **651.** Effects of epinephrine and norepinephrine before and after Dibenzyline in dogs with a mechanical heart. J. E. KENDRICK (intr. by G. N. LOOFBOURROW). *Univ. of Kansas.*

9:45 **652.** Adrenergic activity of canine vascular bed. C. P. DEAL, JR.,* HAROLD H. CHAKALES* AND HAROLD D. GREEN. *Bowman Gray School of Medicine.*

10:00 **653.** Decarboxylation of 3,4-dihydroxyphenylalanine (Dopa) and its competitive inhibition in vivo. ROBERT S. POGRUND* AND WILLIAM G. CLARK. *Med. Ctr. Univ. of California at Los Angeles.*

10:15 **654.** Vascular responses in the dog's hind leg to intra-arterial epinephrine and norepinephrine before and after Dibenzyline. KENNETH E. JOCHIM AND H. G. EWY.* *Univ. of Kansas.*

10:30 **655.** Biosynthesis of adrenaline and noradrenaline by adrenal slices. NORMAN KIRSHNER AND MCC. GOODALL (intr. by KEITH S. GRIMSON). *Duke Univ. Med. School.*

10:45 **656.** Effects of L-epinephrine and L-norepinephrine on portal pressure of dogs. SHEILA M. BRISCOE (intr. by DURWOOD J. SMITH). *Univ. of Vermont.*

11:00 **657.** Vaso-active material of guinea pig serum. GEORGES UNGAR AND RICHARD E. GOLDHAMER.* *Vitamin Corp., Yonkers.*

11:15 **658.** Urinary output of adrenaline in normal human males. FRITZ BISCHOFF AND CHARLES L. GRAY.* *Santa Barbara Cottage Hosp. Res. Inst.* (Biochem.)

Lipids-Reticulo Endothelial System

FRIDAY, 9:00 A.M.—DENNIS, GARDEN LOUNGE

Chairman: Albert S. Gordon

9:00 **659.** Effects of fasting and refeeding on composition of rat adipose tissue. CECIL ENTENMAN, NELL S. AYRES* AND ALBERT R. BEHNKE, JR. *U. S. Naval Radiological Defense Lab., San Francisco.*

9:15 **660.** Autoxidation of polyunsaturated fatty acids in human plasma. JOHN D. EVANS, NADIA L. OLEKSYSHYN* AND JEROME M. WALDRON. *Temple Univ. School of Medicine.*

9:30 **661.** Ethanol metabolism in the rat. F. W. KINARD, J. C. AULL* AND W. J. ROBERTS, JR.* *Med. College of South Carolina.*

9:45 **662.** Variations in biliary bile acids, cholesterol and lecithin in ewes caused by pregnancy. CHARLES G. JOHNSTON, HIDEHIKO

SHIMURA* AND JOHN F. R. KUCK, JR.* *Wayne Univ. College of Medicine.*

10:00 **663.** Clearing of neutral fat by tissue lipase. RENALD R. DINELLA* AND H. C. MENG (intr. by ELLIOT V. NEWMAN). *Vanderbilt Univ. Med. School.*

10:15 **664.** Radioactive phosphorus uptake by human platelets. EDMUND W. CAMPBELL AND WALTER J. SMALL (intr. by M. S. RABEN). *New England Ctr. Hosp.*

10:30 **665.** Endocrine influences on uptake of radioactive colloidal gold (Au^{198}) by reticuloendothelial organs. SHERWOOD M. REICHARD,* ABRAHAM EDELMANN AND ALBERT S. GORDON. *Grad. School of Arts and Science, New York Univ.*

10:45 **666.** Reticuloendothelial function and anti-reticulocytotoxic sera. J. H. HELLER, D. A. BOROFF* AND R. M. MEIER.* *New England Inst. for Med. Research.*

11:00 **667.** Kinetics of ultraphagocytosis. ROBERT E. GOSSELIN. *Univ. of Rochester School of Medicine and Dentistry.*

11:15 **668.** Effect of choline deficiency on reticuloendothelial system of the rat. N. R. DI LUZIO (intr. by R. H. ALDEN). *Univ. of Tennessee.*

Shock, Burns, Bleeding, Trauma

FRIDAY, 9:00 A.M.—DENNIS, NORTH EUROPEAN ROOM

Chairman: A. Luisada

9:00 **669.** Erythropoietic activity in the burned dog. AUDRAY K. DAVIS* AND EDWARD L. ALPEN. *U.S. Naval Radiological Defense Lab., San Francisco.*

9:15 **670.** Effectiveness of various infusions in restoring cardiac output of dogs after thermal injury. J. P. GILMORE (intr. by STANLEY W. HANDFORD). *Naval Med. Field Research Lab., Camp Lejeune.*

9:30 **671.** Anemia and survival after thermal injury in rats. MILES D. MCCARTHY, MARGARET AMREIN* AND PEGGY COBB.* *Pomona College.*

9:45 **672.** Production of secondary shock by combined bleeding-aortic occlusion method. JAMES J. SMITH, ROBERT A. GRACE AND DONALD J. KERSTING (intr. by ROBERT D. TAYLOR). *Marquette Univ. School of Medicine.*

10:00 **673.** Participation of the R-E system in readjustment to hemorrhage and trauma. B. W. ZWEIFACH, J. M. MCKENNA* AND W. ANTOPOL. *New York Univ.-Bellevue Med. Ctr. and Helen Yeamans Levy Fndn., Beth Israel Hosp.*

10:15 **674.** Splanchnic hemodynamics and O_2 utilization during hemorrhagic shock. E. E. SELKURT AND G. A. BRECHER. *School of Medicine, Western Reserve Univ.*

10:30 **675.** Protection in hemorrhagic shock by N - ethyl - N - hexahydrobenzyl - B - chloroethylamine (G-D 131) given after initiation of bleeding. S. G. SRIKANTIA,* SILVIO BAEZ, ANNE CARLETON* AND EPHRAIM SHORR. *Cornell Univ. Med. College.*

10:45 **676.** Circulatory changes in liver and small intestine of the dog after Escherichia coli endotoxin. L. D. MACLEAN,* M. H. WEIL,* R. J. STISH,* W. W. SPINK* AND M. B. VISSCHER. *Univ. of Minnesota.*

11:00 **677.** Effect of chlorpromazine on survival from hemorrhagic shock. G. B. SPURR,* ENID ALLBAUGH FARRAND* AND STEVEN M. HORVATH. *State Univ. of Iowa.*

11:15 **678.** Mortality and body weight loss of acutely and chronically fasted rats subjected to surgical trauma. MORTON D. PAREIRA AND STANLEY LANG (intr. by M. S. FLEISHER). *Surgical Labs. Research Inst. of the Jewish Hosp., St. Louis.* (Immunol.)

Respiration, CO_2, Acid-Base

FRIDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, WEDGEWOOD ROOM

Chairman: Wallace O. Fenn

9:00 **679.** Simultaneous lowering of upper and lower limits of CO_2 tolerance. JOHN L. CHAPIN (intr. by CLARENCE A. MAASKE). *Univ. of Colorado Med. Ctr.*

9:15 **680.** Effects of chronic hyperventilation on hypocapnic tolerance. J. G. WELLS, B. BALKE AND J. P. ELLIS, JR. (intr. by HANS G. CLAMANN). *USAF School of Aviation Medicine, Texas.*

9:30 **681.** Acid-base alterations during hyperventilation. JAMES P. ELLIS, JR., J. GORDON WELLS AND BRUNO BALKE (intr. by HUBERTUS STRUGHOLD). *USAF School of Aviation Medicine, Texas.*

9:45 **682.** Variations of plasma carbonic acid pK′ with pH and temperature. M. STUPFEL, J. W. SEVERINGHAUS AND A. F. BRADLEY (intr. by R. P. AKERS). *Natl. Heart Inst.*

10:00 **683.** Effects of cooling of cortical respiratory area on exercise hyperpnea in the dog. JOHN P. HENRY* AND W. V. WHITEHORN. *Univ. of Illinois College of Medicine.*

10:15 **684.** Respiratory acidosis after short periods of O_2 breathing in emphysematous patients. HERMAN F. FROEB,* CHARLES I. LEFTWICH* AND HURLEY L. MOTLEY. *Univ. of Southern California School of Medicine.*

10:30 **685.** Influence of Diamox on posthypercapnic sequelae. E. B. BROWN, JR. AND ROYAL HAYDEN.* *Univ. of Minnesota.*

10:45 **686.** Effect of temperature on whole blood buffers. D. A. HOLADAY, E. NELSON and V. LAUDERDALE (intr. by THOMAS H. ALLEN). *Columbia Univ.*

11:00 **687.** Effects of prolonged exposure of monkeys to carbon dioxide. S. A. KAPLAN, S. N. STEIN, R. B. WILLIAMS, H. M. CARPENTER, J. ANNEGARS AND R. E. LEE. (intr. by D. J. BOTTS). *Naval Med. Research Inst.*

11:15 **688.** Succinylcholine paralysis, artificial respiration and CO_2 causing prolonged central respiratory depression. NILS NORMANN (intr. by H. K. BEECHER). *Jewish Hosp., Washington Univ., St. Louis.*

O_2 Poisoning

FRIDAY, 9:00 A.M.—MARLBOROUGH-BLENHEIM, OCEAN HALL

Chairman: C. J. Lambertsen

9:00 **689.** Reserpine and reaction to O_2 at high pressure. JOHN W. BEAN. *Univ. of Michigan.*

9:15 **690.** Quantitation of effects of x-radiation and O_2 poisoning by the electroretinogram. W. K. NOELL AND N. A. BAILY.* *Roswell Park Memorial Inst., Buffalo.*

9:30 **691.** Withdrawn.

9:45 **692.** Conduction block in peripheral nerve produced by O_2 at high pressure. PHANOR L. PEROT, JR.* AND S. N. STEIN. *Naval Med. Research Inst.*

10:00 **693.** Effect of O_2 poisoning on gastrulation of frog embryos. SASHA MALAMED (intr. by ROBERTS RUGH). *Columbia Univ.*

10:15 **694.** Effects of brief interruptions of pure O_2 breathing on central nervous system tolerance to O_2. B. D. KAUFMAN, S. G. OWEN AND C. J. LAMBERTSEN (intr. by J. E. ECKENHOFF). *Univ. of Pennsylvania School of Medicine.*

10:30 **695.** Pulmonary damage in high O_2 pressure. KENNETH E. PENROD. *Duke Univ. School of Medicine.*

10:45 **696.** CO_2 retention in working divers breathing N_2-O_2 mixtures at depth. EDWARD H. LANPHIER (intr. by ORR E. REYNOLDS). *Naval Gun Factory, Washington, D. C.*

11:00 **697.** Withdrawn.

11:15 **698.** O_2 dependence of hemolysis by ultraviolet light. H. F. BLUM AND JOHN S. COOK.* *Princeton Univ.*

Friday Afternoon, April 20, 12:30 p.m.

Gastrointestinal Physiology

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM 6

Chairman: J. E. Thomas

12:30 **699.** Gastric secretion in the rat with gastric fistula and pouch of entire stomach. A. C. IVY, EMMA K. IVY,* E. B. MAGID* AND H. B. HAYES.* *Univ. of Illinois College of Medicine.*

12:45 **700.** Resection of antral mucosa and vagectomy for treatment of peptic ulcer. DANIEL M. SHAPIRO AND DAVID V. HABIF (intr. by HAROLD G. BARKER). *Columbia Univ., College of Physicians and Surgeons.*

1:00 **701.** Gastrointestinal secretion and absorption of 3-methylaminoisocamphane hydrochloride (mecamylamine). EUGENE J. ZAWOISKI, JOHN E. BAER, LEE W. BRAUNSCHWEIG, SUE F. PAULSON AND AUDREY SHERMER (intr. by KARL H. BEYER). *Merck & Co. Inc., West Point.*

1:15 **702.** Essential amino acids as stimulants of pancreatic secretion. D. F. MAGEE AND S. S. HONG.* *School of Medicine, Univ. of Washington, Seattle.*

1:30 **703.** Growth changes used as assay method for studying pancreatic functions. L. E. EDWARDS AND A. C. BREHME.* *Med. College of Virginia.*

1:45 **704.** Bile salt absorption in small intestine. G. W. SEARLE AND R. D. BAKER (intr. by J. D. THOMSON). *State Univ. of Iowa.*

2:00 **705.** Hyperthermia and intestinal motility in rats. J. CLIFFORD STICKNEY, DAVID W. NORTHRUP AND EDWARD J. VAN LIERE. *School of Medicine, West Virginia Univ.*

2:15 **706.** Effect of pilocarpine on rat salivary gland amylase content. LEON H. SCHNEYER AND CHARLOTTE A. SCHNEYER.* *School of Dentistry and Med. College of Alabama, Univ. of Alabama.*

2:30 **707.** Microchemical determination of alkaline and acid phosphatase in human stomach. ROBERT J. MADDEN, ANTHONY L. PIETROLUONGO AND ANTHONY V. TORRE (intr. by J. EARL THOMAS). *VA Hosp., Philadelphia.*

2:45 **708.** Gastrointestinal water and chloride. I. S. EDELMAN, F. GOTCH,* N. J. SWEET* AND J. NADELL.* *Univ. of California School of Medicine, San Francisco.*

Carbohydrate Metabolism: Enzymes

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM 20

Chairman: A. C. Burton

12:30 **709.** Effect of succinate and fumarate on ketone production by liver slices from nondiabetic and diabetic rats. C. H. BEATTY, E. S. WEST* AND R. M. BOCEK.* *Univ. of Oregon Med. School.*

12:45 **710.** Enhanced carbohydrate oxidation in adrenalectomized rats. W. W. WINTERNITZ (intr. by D. I. HITCHCOCK). *Yale Med. School.*

1:00 **711.** Glucagon and liver glycogen. PIERO P. FOÀ, ERMINIO COSTA* AND GIORGIO GALANSINO.* *Chicago Med. School.*

1:15 **712.** Diabetogenic effects of glucagon. JAMES M. SALTER,* I. W. F. DAVIDSON* AND CHARLES H. BEST. *Univ. of Toronto.*

1:30 **713.** Uptake of labeled glucose by tissue glycogen in vivo. ARTHUR F. DRATZ,* JANE A. RUSSELL AND BARBARA M. COVEY.* *VA Hosp., Atlanta, and Emory Univ.*

1:45 **714.** Disturbances unrelated to mitotic poisoning induced by colchicine in mammals. PAUL F. ROBINSON AND RICHARD R. RUNGE (intr. by CHARLES G. WILBER). *Army Chemical Ctr.*

2:00 **715.** Effect of uncompensated respiratory acidosis on carbohydrate metabolism as related to adrenal function. C. T. G. KING (intr. by R. GREEP). *U. S. Naval Submarine Base, New London.*

2:15 **716.** Influence of intermediates of Krebs cycle upon oxygen uptake of developing wings and legs of chick embryo. WIKTOR W. NOWINSKI AND MARY H. PARTRIDGE.* *Univ. of Texas Med. Branch.*

2:30 **717.** Assimilation and dissimilation of carbohydrates by baker's yeast with 1-C^{14}-labeled glucose. H. L. BERKE* AND A. ROTHSTEIN. *Univ. of Rochester.*

2:45 **718.** Cytochemistry of filamentous Escherichia coli. ROBERT C. BARNETT AND GRACE MORROW (intr. by E. L. PORTER). *Univ. of Texas Med. Branch.*

Effects of Heat, Sweating

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM 11

Chairman: Alrick B. Hertzman

12:30 **719.** Effects of total profile and restricted area exposure to 10-cm. microwaves.

THOMAS S. ELY AND DAVID E. GOLDMAN (intr. by JOHN Z. HEARON). *Naval Med. Research Inst.*

12:45 **720.** Ionic and hemodynamic alterations in hypothermic dogs. HELMER P. AGERSBORG, JR.,* GEORGE BARLOW* AND RICHARD R. OVERMAN. *Univ. of Tennessee College of Medicine.*

1:00 **721.** Heat and hypoglycemia in dogs. G. S. KANTER. *Albany Med. College.*

1:15 **722.** High sensitivity radiometer for skin temperature measurements during exposure to thermal radiation. E. HENDLER* AND J. D. HARDY. *Univ. of Pennsylvania Med. School.*

1:30 **723.** Relation of thermal pain and tissue injury to stimulus intensity-time and skin temperature. ALICE M. STOLL AND JAMES D. HARDY. *Aviation Med. Acceleration Lab., Johnsville, and Univ. of Pennsylvania Med. School.*

1:45 **724.** Physical constants of human skin following thermal injury. L. C. GREENE (intr. by FRED B. BENJAMIN). *Aviation Med. Acceleration Lab., Johnsville, and Univ. of Pennsylvania Med. School.*

2:00 **725.** Magnitude, variability and reliability of regional sweating rates. I. D. FERGUSON,* A. B. HERTZMAN AND A. J. RAMPONE.* *St. Louis Univ. School of Medicine.*

2:15 **726.** Skin water intake in normal persons and during menstrual cycle, pregnancy and cardiac edema, and concentration of sweat. KONRAD J. K. BUETTNER. *Univ. of Washington, Seattle.*

2:30 **727.** Water storage in the camel. KNUT SCHMIDT-NIELSEN. *Duke Univ.*

2:45 **728.** Tolerance to heat exposure of thirsting mammal. HAROLD LAMPORT. *Yale Univ. School of Medicine.*

3:00 **729.** Effects of environmental temperature and dehydration on susceptibility of mice to lead poisoning. S. N. D. JOARDAR* AND A. M. BAETJER. *Johns Hopkins School of Hygiene and Public Health.*

PAPERS READ BY TITLE

730. Reduction in parotid amylase after hypophysectomy. BURTON L. BAKER, JEROME H. KLEGMAN* AND ROBERT G. LOGAN.* *Univ. of Michigan.*

731. Blood levels of 17-hydroxycorticosteroids in hyperthermic dogs. GEORGE BARLOW,* HELMER P. AGERSBORG, JR.* AND RICHARD R. OVERMAN. *Univ. of Tennessee.*

732. Effect of dehydrated plant juices in diet on Q_{O_2} of rat tissue slices. JOHN P. BAUMGARDT,* G. CARL RAU, THEODORE AUYONG* AND L. L. EISENBRANDT. *Univ. of Kansas City.*

733. Cardometer for laboratory and clinical use. JAMES B. BELL,* E. FULCHIERO* AND STEVENS J. MARTIN. *St. Francis Hosp., Hartford, Conn.*

734. Human cerebral function: Disturbances in conditioning in patients with cerebral lesions. LOUIS BERLIN* AND HAROLD G. WOLFF. *New York Hosp., Cornell Med. Ctr.*

735. Blood pressure in old hamsters. HERBERT J. BERMAN,* BRENTON R. LUTZ AND GEORGE P. FULTON. *Boston Univ.*

736. Mechanism of the pacemaker and the receptor. R. H. BEUTNER. *Des Moines Still College.*

737. Effect of human gastric juice on blood coagulation and clot lysis. TIBOR BODI, C. W. WIRTS AND R. T. CARROLL (intr. by M. H. F. FRIEDMAN). *Jefferson Med. College.*

738. Assay of exogenous TSH by a two-day assay using normal rats. J. H. U. BROWN. *Emory Univ.*

739. Concurrent effects of x-irradiation on peripheral blood and peritoneal fluid cell populations in the rat. F. G. BUCH,* H. A. CHARIPPER AND A. EDELMANN. *New York Univ., and Brookhaven Natl. Lab.*

740. Quantum detection in biological systems, with particular reference to olfaction. BERRY CAMPBELL. *Univ. of Minnesota.*

740a. Metabolism of pyruvate-2-C^{14} to CO_2 and glycogen by isolated perfused cardiac and skeletal muscle. H. MEAD CAVERT AND RUTH B. BOYD.* *Univ. of Minnesota.*

741. Convulsive effects of tripellenamine and diphenhydramine in monkeys. JOSEPH G. CHUSID, LENORE M. KOPELOFF* AND NICHOLAS KOPELOFF.* *St. Vincent's Hosp., New York.*

742. Yields of isolated rabbit, hamster and human platelets obtained with new micromethod. ALFRED L. COPLEY, TRAJAN BALEA* AND VO-VINH-HOA.* *Centre National de Transfusion et Institut National d'Hygiene, Paris.*

743. Pathogenesis of experimental hypertension in dogs, produced by carotid sinus area constriction. E. CRANDALL* AND G. E. WAKERLIN. *Univ. of Illinois.*

744. Pituitary-thyroid function in the epinephrine-treated rat. S. A. D'Angelo. *Jefferson Med. College.*

745. Adrenergic drugs and blockade on coronary blood flow. ADAM B. DENISON, JR., SUTHIP BARDHANABARDYA* AND HAROLD D. GREEN. *Bowman Gray School of Medicine.*

746. Physiological disposition of dilantin-(diphenylhydantoin) in animal and man. W. A. DILL,* A. KAZENKO*, L. M. Wolf* AND A. J. GLAZKO. *Parke, Davis and Co.*

747. Role of the kidney in etiology of renal hyperlipemia. N. R. DI LUZIO* AND C. RILEY HOUCK. *Univ. of Tennessee.*

748. Effect of ascorbic acid in the response of blood glucose and adrenal cholesterol in the rat to insulin. MURIEL DURY* AND ABRAHAM DURY. *Dorn Lab. Med. Research.*

749. Intercellular distribution of DPNH cytochrome *c* reductase in rat and guinea pig spleen. HERBERT J. EICHEL (intr. by L. LEVENBOOK). *Hahnemann Med. College.*

750. Pattern of variation of intervals in the discharge from muscle spindles and gamma efferents. EARL ELDRED, CURT VON EULER,* TOSHIO KUSAMA AND TOSHIHIKO TOKIZANE (intr. by C. SZEGO). *Univ. of California at Los Angeles and VA Hosp., Long Beach.*

751. Osmotic diuresis as a means to overcome post-traumatic antidiuresis. S. ELDRUP-JORGENSEN,* V. MIHAJLOV* AND J. U. SCHLEGEL. *Univ. of Rochester.*

752. Comparative actions of a series of benzhydryl piperazines on mammalian heart. C. H. ELLIS, P. B. RUSSELL* AND L. N. SIVERTSEN.* *Wellcome Research Labs.*

753. Synthesis of lipids from radioactive propionate by surviving adipose tissue slices. D. D. FELLER, E. FEIST* AND REX L. HUFF.* *VA Hosp., Seattle and Univ. of Washington.*

754. Response in motility of non-innervated smooth muscle to succinylcholine choride. JOHN FERGUSON. *Creighton Univ.*

755. Regulation of insulin secretion by carbohydrates other than glucose. PIERO P. FOA, GIORGIO GALANSINO,* ERMINIO COSTA* AND GUIDO POZZA.* *Chicago Med. School.*

756. Failure of absorption of esterified cholesterol in absence of bile. MEYER FRIEDMAN. *Harold Brunn Inst., Mount Zion Hosp., San Francisco.*

756a. Sensitivity of Paramecium caudatum to O_2 toxicity as influenced by cobaltous and manganous ions and hematoporphyrin. R. GERSCHMAN, D. L. GILBERT,* S. W. NYE* AND W. O. FENN. *Univ. of Rochester.*

756b. Effects of high O_2 pressure (HOP) in in vitro systems. D. L. GILBERT,* R. GERSCHMAN AND W. O. FENN. *Univ. of Rochester.*

757. Hepatic uptake of radioactive vitamin B_{12} in liver disease. GEORGE B. JERZY GLASS, LEONARD M. EBIN,* LINN J. BOYD AND ROGER LAUGHTON.* *New York Med. College.*

758. Effect of whole body irradiation on the excretion of sodium and potassium in the rat. J. L. GLENN* AND W. R. BOSS. *Syracuse Univ.*

759. Development of protein granules in the fat body of Drosphila melanogaster larvae. E. D. GOLDSMITH AND SOL KRAMER.* *New York Univ.*

760. Atrophy in denervated muscles. Effect of muscle length. A. SIDNEY HARRIS AND ALVIN M. COTLAR.* *Louisiana State Univ.*

761. Absence of antihypertensive effect of bilateral frontal lobectomy or leucotomy in dogs hypertensive from bilateral carotid sinus constriction. EDWARD W. HAWTHORNE AND CLARENCE S. GREENE.* *Howard Univ.*

762. Renal clearance in the alligator. THOMAS HERNANDEZ AND ROLAND A. COULSON.* *Louisiana State Univ.*

763. Functional role of brain stem reticular system in salivary conditioned response. R. HERNANDEZ-PEON, H. BRUST-CARMONA, E. ECKHAUS, E. LOPEZ-MENDOZA AND C. ALCOCER-CUARON (intr. by J. J. IZQUIERDO). *Univ. of Mexico.*

764. Reactions of nude men to a mild cold exposure. STEVEN M. HORVATH, G. B. SPURR,* B. K. HUTT* AND L. H. HAMILTON.* *State Univ. of Iowa.*

765. Temperature effects on the swelling of liver slices immersed in solutions of sodium chloride, monosaccharides and disaccharides. S. ITOH* AND I. L. SCHWARTZ. *Rockefeller Inst. for Med. Research.*

766. Reaction of New Zealand giant rabbits to ambient temperatures 9–40°C. HAROLD D. JOHNSON,* C. S. CHENG* AND SAMUEL BRODY. *Univ. of Missouri.*

767. Anticoagulates for turtle blood. HAROLD M. KAPLAN. *Southern Illinois Univ.*

768. 17-ketosteroid determinates on rats: Method and preliminary results. SEYMOUR KATSH (intr. by S. R. M. REYNOLDS). *California Inst. of Technology.*

769. Effects of l-norepinephrine and l-epinephrine on coronary flow and O_2 consumption of the intact open chest dog. L. N. KATZ, F. L. WILLIAMS,* D. LAURENT,* C. BOLENE-WILLIAMS* AND H. FEINBERG.* *Michael Reese Hosp.*

770. Respiratory response to inspired CO_2 during acclimatization to altitude. R. H. KELLOGG,* NELLO PACE, E. R. ARCHIBALD* AND B. E. VAUGHAN.* *Univ. of California and White Mountain Research Station.*

771. Sine wave expressions of respiratory phenomena. HUGO KRUEGER. *Oregon State College.*

772. Distribution of circulating eosinophils of the rat in cold stress. NATHAN LAVENDA AND ROSCOE G. BARTLETT, JR. (intr. by JOSEPH L. JOHNSON). *Howard Univ.*

773. Some physiological properties of cerebral cortical motor systems of unaesthetized monkey. JOHN C. LILLY, JOHN R. HUGHES* AND THELMA W. GALKIN.* *Natl. Insts. of Health.*

774. Use of radioactive carbon compounds for studying nutritional requirements of daphnia magna. V. F. LINDEMANN AND LEROY DAVIS.* *Syracuse Univ.*

775. Cardiac glycogen fractions following ligation of the coronary artery of the dog. ARTHUR MERRICK* AND DALLAS K. MEYER. *Univ. of Missouri.*

776. Activation of cerebellar cortex by afferent impulses. F. MORIN. *Wayne Univ.*

777. Contralateral mnemonic effects with ipsilateral sensory inflow. R. E. MYERS* AND R. W. SPERRY. *California Inst. of Technology.*

778. Comparative glycemic response of small animals to chlorpromazine. DAVID NORMAN* AND WILLIAM A. HIESTAND. *Purdue Univ.*

779. Unusual form of protein-bound serum iodine in Hashimoto's thyroiditis. CHARLES A. OWEN, JR. AND WILLIAM M. MCCONAHEY.* *Mayo Clinic.*

780. Excretory effects of Diamox on water-loaded normal and adrenalectomized rats. J. H. PERLMUTT AND D. A. OLEWINE.* *Univ. of North Carolina.*

781. Promotion of glycogen fraction synthesis by magnesium. W. S. PLATNER. *Univ. of Missouri.*

782. Limitation of experimental congestive edema by self-selection of fluid intake. W. O. REINHARDT. *Univ. of California.*

783. Positive orientation to light by the starfish Asterias foresi. MORRIS ROCKSTEIN. *New York Univ. and Marine Biological Lab.*

784. Quantitative clinical measure of cardiorespiratory dysfunction based on undulations in blood pressure. SIMON RODBARD, JAN CIESIELSKI* AND CHARLES I. OLIN.* *Univ. of Buffalo.*

785. 'Toxic factors' in burns. SOL ROY ROSENTHAL, FRANK J. FINAMORE,* F. R. HUNTER AND ALBERT D. WILLIAMS.* *Univ. of Illinois.*

786. Refractometric determination of total solids and water content of body fluids. MILTON E. RUBINI* AND A. V. WOLF. *Walter Reed Army Med. Ctr.*

787. Onset of active state in potentiated muscular contractions. ALEXANDER SANDOW AND MANFRED BRUST.* *New York Univ.*

788. Effect of vagal stimulation on crushed sinus node tissue of the dog's auricle. DAVID SCHERF, SERGE BLUMENFELD, EDITH REID AND ARTHUR WEISZ (intr. by I. KLEINER). *New York Med. College.*

789. Sex of infant in relation to nuclear morphology of cells in human amniotic fluid. LANDRUM B. SHETTLES. *Columbia Univ.*

790. Action of MK-57 upon fetus and upon labor. FRANKLIN P. SNYDER. *Harvard Univ.*

791. Site of spinal monosynaptic inhibition. JAMES M. SPRAGUE. *Rockefeller Inst.*

792. Insulin-induced inhibition of estrogen antiatherogenesis in coronary vessels of cholesterol-fed cockerels. J. STAMLER, R. PICK AND L. N. KATZ. *Michael Reese Hosp.*

793. Influence of hemorrhage on peptidase activity of blood and bone marrow. MYRON TANNENBAUM* AND ALBERT S. GORDON. *New York Univ.*

794. Purification of lipid antithromboplastin. D. L. TURNER AND M. J. SILVER (intr. by L. M. TOCANTINS). *Jefferson Med. College.*

795. Effect of tapazole on rat heart/body-weight ratio. EDWARD J. VAN LIERE AND THOMAS R. MAZZOCCO.* *West Virginia Univ.*

796. Relative alterations of gastric iodide and chloride clearances in dogs. L. VAN MIDDLESWORTH and G. L. HOWELL.* *Univ. of Tennessee.*

797. Failure of pregnane 3α,20βdiol and pregnane 3β,20β diol to inhibit estradiol-17β-induced uterine growth and vaginal cornification. JOSEPH T. VELARDO. *Yale Univ.*

798. Effect of age, gonadectomy and gonadotrophins on blood pressure of chicks. H. S. WEISS,* R. K. RINGER* AND P. D. STURKIE. *Rutgers Univ.*

799. The piscine heart. CHARLES G. WILBUR. *Army Chemical Ctr.*

800. Oxygen uptake of adrenal slices from testectomized rats of different ages. MARTIN W. WILLIAMS* AND CLIFFORD A. ANGERER. *Univ. of Vermont and Ohio State Univ.*

801. Inhibition by vitamin B_{12} of cortisone-induced weight loss in mice. W. LANE WILLIAMS. *Univ. of Minnesota.*

802. Bacterial involvement in reactions to stress in the rat. B. W. ZWEIFACH, S. G. HERSHEY, I. GUCCIONE*, I. SAPHRA AND W. ANTOPOL. *Bellevue Med. Ctr., and Beth Israel Hosp., New York.*

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS

Forty-seventh Annual Meeting[1]

ATLANTIC CITY, APRIL 16–20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 16, 1:15 p.m.

Protein Metabolism

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM B

Chairman: L. L. Miller

1:15 **803.** κ-Casein: micelle stabilizing protein in milk. P. H. VON HIPPEL* AND D. F. WAUGH. *Massachusetts Inst. of Technology.* (Physiol.)

1:30 **804.** Proteins of synovial fluid. O. W. NEUHAUS (intr. by A. H. SMITH). *Wayne Univ. College of Medicine.*

1:45 **805.** Quantitative cystine, cysteine and methionine requirements of mammalian tissues cultivated in vitro. J. F. MORGAN AND H. J. MORTON.* *Dept. of National Health and Welfare, Ottawa.*

2:00 **806.** Enzymatic release of nonprotein sulfhydryl from tissue homogenates. U. D. REGISTER, A. M. LASORSA AND D. M. KATSUYAMA (intr. by M. N. CAMIEN). *School of Medicine, College of Med. Evangelists, Loma Linda, Calif.*

2:15 **807.** Comparative turnover of cystine-S^{35} and lysine-ε-C^{14} in various plasma proteins of the dog following infusion of doubly labeled plasma. P. D. GOLDSWORTHY AND W. VOLWILER (intr. by C. A. FINCH). *Univ. of Washington, Seattle.* (Physiol.)

2:30 **808.** Preparation and fate of serum albumin labeled with C^{14} and S^{35}. D. S. WIGGANS, H. W. RUMSFELD, JR. AND W. W. BURR, JR. (intr. by H. C. TIDWELL). *Univ. of Texas, Southwestern Med. School.*

2:45 **809.** Turnover rates of serum protein of normal dogs. H. JEFFAY AND S. MOZERSKY (intr. by M. E. RAFELSON). *Univ. of Illinois College of Medicine.*

3:00 **810.** Metabolism of internally labeled S^{35}-proteins. F. HAUROWITZ AND H. WALTER.* *Indiana Univ., Bloomington.*

3:15 **811.** Amino acid metabolism in human blood cells. G. ROUSER, B. JELINEK AND A. J. SAMUELS (intr. by D. SIMONSEN). *City of Hope Med. Ctr., Duarte, Calif.*

3:30 **812.** Titratable —SH groups of sickle-cell hemoglobin at 0° and 38°C. M. MURAYAMA (intr. by C. C. NIEMANN). *California Inst. of Technology, Pasadena.*

3:45 **813.** Ion exchange chromatography of human hemoglobin. J. L. COOK AND M. MORRISON (intr. by W. S. MCCANN). *Univ. of Rochester School of Medicine and Dentistry.*

4:00 **814.** Production of hydrogen peroxide during the reactions between oxyhemoglobin and certain reducing substances. H. H. ROSTORFER AND M. J. CORMIER.* *Indiana Univ., Bloomington and Oak Ridge Natl. Lab.* (Physiol.)

Enzymes: DPN Action, Active Sites

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM C

Chairman: Birgit Vennesland

1:15 **815.** Reduction of a thioketone by a model for DPNH. R. H. ABELES AND F. H. WESTHEIMER (intr. by E. G. BALL). *Harvard Univ.*

1:30 **816.** Effect of deuterium substitution on the kinetics of hydrogen transfers catalyzed

[1] *Program Committee:* E. H. STOTZ, *Chairman*; A. L. DOUNCE, L. L. MILLER, W. W. WESTERFELD, H. H. WILLIAMS, R. F. WITTER.

by pyridinoproteins. H. R. MAHLER AND J. DOUGLAS.* *Indiana Univ., Bloomington.*

1:45 **817.** Mechanism of DPNase catalyzed exchange reactions. L. GROSSMAN (intr. by N. O. KAPLAN). *Johns Hopkins Univ.*

2:00 **818.** Hydrogen transfer in DPN-linked enzyme reactions. H. R. LEVY,* J. L. GRAVES* AND B. VENNESLAND. *Univ. of Chicago.*

2:15 **819.** Specific reactions of dinitrofluorobenzene with active groups of chymotrypsin. J. R. WHITAKER* AND B. J. JANDORF. *Army Chemical Center.*

2:30 **820.** Phosphopeptides from chymotrypsin and trypsin after inactivation by P^{32} labeled DFP and sarin. N. K. SCHAFFER, R. R. ENGLE,* L. SIMET,* R. W. DRISKO* AND S. HARSHMAN.* *Army Chemical Center.*

2:45 **821.** Reversible denaturation of trypsin by urea. H. O. MICHEL. *Army Chemical Center.*

3:00 **822.** Structural and functional relationships in ribonuclease. C. B. ANFINSEN. *Natl. Heart Inst.*

3:15 **823.** Specificity of myosin-water interaction in hydrolysis of adenosinetriphosphate. E. B. HERR, JR.* AND D. E. KOSHLAND, JR. *Brookhaven Natl. Lab.*

Enzymes and Enzyme Inhibitors

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM D

Chairman: R. M. Herriott

1:15 **824.** Effect of calcium ions and ethylenediamine tetraacetate (EDTA) on myosin B-adenosinetriphosphatase. N. R. HANSL (intr. by E. M. BRIDGE). *Univ. of Buffalo.*

1:30 **825.** Diphosphopyridine nucleotidase and its inhibitor from Mycobacterium butyricum. M. KERN (intr. by W. D. MCELROY). *Johns Hopkins Univ.*

1:45 **826.** Direct determination of nuclease activity in guinea pig epidermis. J. TABACHNICK AND E. CERCEO (intr. by C. WEISS). *Albert Einstein Med. Center, Philadelphia.* (Immunol.)

2:00 **827.** Purification and partial characterization of ribonucleases of rat liver mitochondria. J. S. ROTH (intr. by J. S. HEPBURN). *Hahnemann Med. College.*

2:15 **828.** Control of desoxyribonuclease activity. R. N. FEINSTEIN AND F. O. GREEN.* *Argonne Natl. Lab., Lemont, Ill.*

2:30 **829.** Inhibition of prostatic acid phosphatase by α-hydroxyl carboxylic acids. B. AXELROD AND G. E. SEWELL.* *Purdue Univ.*

2:45 **830.** Dissociation of the D-amino acid oxidase-benzoate complex as a function of substrate. J. R. KLEIN. *Brookhaven Natl. Lab.*

3:00 **831.** Interaction of beef liver glutamic dehydrogenase with metal binding agents. S. J. ADELSTEIN AND B. L. VALLEE (intr. by J. P. O'HARE). *Harvard Med. School and Peter Bent Brigham Hosp., and Massachusetts Inst. of Technology.* (Pathol.)

3:15 **832.** Inhibition of liver lactic dehydrogenase. C. S. VESTLING, H. TERAYAMA,* J. R. FLORINI* AND J. N. BAPTIST.* *Univ. of Illinois, Urbana.*

3:30 **833.** Anomalous behavior of muscle and yeast 3-phosphoglyceraldehyde dehydrogeanse toward several sulfhydryl reagents. G. W. RAFTER (intr. by R. M. HERRIOTT). *Johns Hopkins Univ.*

3:45 **834.** Inhibition of yeast alcohol dehydrogenase by pyridine derivatives. J. VAN EYS (intr. by W. M. CLARK). *Johns Hopkins Univ.*

4:00 **835.** Inhibition of yeast alcohol dehydrogenase by metal-binding agents. F. L. HOCH AND B. L. VALLEE (intr. by C. P. LYMAN). *Harvard Med. School and Peter Bent Brigham Hosp.* (Physiol.)

Chemistry of RNA and Derivatives

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM E

Chairman: E. Chargaff

1:15 **836.** Cortisone induced alteration in liver RNA following incubation. C. LOWE AND R. RAND.* *Children's Hosp., Buffalo.* (Pathol.)

1:30 **837.** A column chromatographic and paper ionographic method for separation of purines and pyrimidine nucleotides in PNA hydrolysates. D. S. KINNORY, E. M. ZORN AND D. S. GAINES (intr. by A. HILLER). *VA Hosp., Hines, and Stritch School of Medicine, Loyola Univ.*

1:45 **838.** Amino acid-nucleotide complexes in Schmidt-Thannhauser digests of ribonucleic acid. J. L. POTTER* AND A. L. DOUNCE. *Univ. of Rochester School of Medicine and Dentistry.*

2:00 **839.** Synthesis of 6-succinylaminopurine and structure of adenylosuccinic acid. C. E. CARTER. *Yale Univ.*

2:15 **840.** Synthesis of isomeric thymine pentofuranosides, including 'spongothymidine.' J. J. FOX AND N. C. YUNG.* *Sloan-Kettering Inst. for Cancer Research.*

2:30 **841.** New pyrimidine nucleoside analogues. I. GOODMAN. *Wellcome Research Labs., Tuckahoe, N. Y.*

2:45 **842.** Calcium and magnesium complexes of ATP. Determination of dissociation constants. L. NANNINGA (intr. by A. SZENT-

GYORGYI). *Inst. for Muscle Research, Woods Hole.*

3:00 **843.** Isolation of an adenosine nucleotide from liver. R. G. HANSEN, E. HAGEMAN,* R. A. FREEDLAND* AND D. R. WILKIN.* *Univ. of Illinois.*

Sterols and Bile Acids

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM 6

Chairman: K. Bloch

1:15 **844.** Nature of 24-dehydroergosterol. H. J. NICHOLAS, H. J. BUEHLER, L. J. DACKSEL AND W. P. YOUNG (intr. by J. ALLISON). *Anheuser-Busch, Inc., St. Louis.*

1:30 **845.** Squalene turnover in relation to cholesterol biosynthesis. A. V. LOUD (intr. by N. L. R. BUCHER). *Huntington Memorial Hosp. of Harvard Univ., and Massachusetts General Hosp.* (Physiol.)

1:45 **846.** Isolation from rat skin of a possible intermediate in cholesterol synthesis. I. D. FRANTZ, JR., A. G. DAVIDSON* AND E. DULIT.* *Univ. of Minnesota Med. School.*

2:00 **847.** Conversion of lanosterol to cholesterol. J. A. OLSON* AND K. BLOCH. *Harvard Univ.*

2:15 **848.** Transformation of cholesterol-3d,4C^{14} to coprostanol. Location of deuterium in coprostanol. R. S. ROSENFELD,* L. HELLMAN* AND T. F. GALLAGHER. *Sloan-Kettering Inst. for Cancer Research.*

2:30 **849.** Biological conversion of cholestenone-4-C^{14} to an unsaturated 3β-OH sterol. H. S. VISHNIAC AND F. J. NIELSEN (intr. by H. P. TREFFERS). *Yale Univ. and Brookhaven Natl. Lab.* (Immunol.)

2:45 **850.** Production of bile acids from cholesterol by liver mitochondria. D. S. FREDERICKSON (intr. by H. D. BAERNSTEIN). *Natl. Insts. of Health.*

3:00 **851.** Isolation of a chenodeoxycholic acid metabolite from the urine of surgically jaundiced rats. T. A. MAHOWALD* AND W. H. ELLIOTT. *St. Louis Univ. School of Medicine.*

3:15 **852.** Chemical studies on new bile acids from rat and hog bile. S. L. HSIA,* J. T. MATSCHINER* AND S. A. THAYER. *St. Louis Univ. School of Medicine.*

3:30 **853.** Unsaponifiable fraction of brain lipides. W. M. SPERRY. *New York State Psychiatric Inst. and Columbia Univ.*

3:45 **854.** Nutritional influences on conjugation of bile acids by the rat. E. A. DOISY, JR., M. DANIELS* AND SISTER M. A. ZIMMERMAN.* *St. Louis Univ. School of Medicine.*

4:00 **855.** Properties of partially purified pancreatic cholesterol esterase. M. KORZENOVSKY, B. M. VESELY AND E. R. DILLER (intr. by O. K. BEHRENS). *Eli Lilly and Co., Indianapolis.*

Microorganisms I

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM 7

Chairman: I. C. Gunsalus

1:15 **856.** Relationship of nitrite and hydroxylamine reductases to nitrate assimilation and nitrogen fixation in Azotobacter. D. SPENCER,* H. TAKAHASHI* AND A. NASON. *Johns Hopkins Univ.*

1:30 **857.** Metabolism of fixed nitrogen by Azotobacter vinelandii. D. P. BURMA* AND R. H. BURRIS. *Univ. of Wisconsin.*

1:45 **858.** Bacterial fermentation of nicotinic acid. I. HARARY (intr. by J. SNOKE). *VA Hosp., Long Beach, and Univ. of California School of Medicine, Los Angeles.*

2:00 **859.** Certain factors modifying amino acid interrelationships and related peptide effects in lactic acid bacteria. R. J. SIRNY AND J. N. MILLS (intr. by V. G. HELLER). *Oklahoma Agric. Exptl. Station, Stillwater.*

2:15 **860.** Uptake and accumulation of amino acids by lactic acid bacteria. J. T. HOLDEN* AND E. ROBERTS. *City of Hope Med. Ctr., Duarte, Calif.*

2:30 **861.** Inhibition of the growth of Leuconostoc mesenteroides P-60 by L-penicillamine and its reversal by serine. H. V. APOSHIAN AND J. A. SETLIFF (intr. by J. P. LAMBOOY). *Vanderbilt Univ. School of Medicine.*

2:45 **862.** Metabolism of thetins in yeast (Torulopsis utilis). F. SCHLENK AND R. E. DEPALMA.* *Argonne Natl. Lab., Lemont, Ill.*

3:00 **863.** Bacterial dismutation of 5-methyltryptophan. E. BEERSTECHER, JR. AND E. J. EDMONDS.* *Univ. of Texas, Dental Branch.*

3:15 **864.** Metabolism of formiminoglycine and glycine by Clostridium acidi-urici. J. C. RABINOWITZ AND W. E. PRICER, JR.* *Natl. Insts. of Health.*

3:30 **865.** Biosynthesis of spermidine and spermine from putrescine. H. TABOR, S. M. ROSENTHAL AND C. W. TABOR.* *Natl. Insts. of Health.*

3:45 **866.** A pyrrole-containing precursor of prodigiosin. U. V. SANTER AND H. J. VOGEL (intr. by D. M. BONNER). *Yale Univ.*

4:00 **867.** Amine metabolism of hemophilus parainfluenzae. R. H. WEAVER AND E. J. HERBST (intr. by E. G. SCHMIDT). *Univ. of Maryland School of Medicine.*

Tuesday Morning, April 17, 9:00 a.m.

FIFTIETH ANNIVERSARY SYMPOSIUM

TUESDAY, 9:00 A.M.—CONVENTION HALL, BALLROOM

Chairman: Herbert E. Carter

9:00 **868.** Opening remarks by the Chairman.

9:10 **869.** Virus composition and structure—25 years ago and now. WENDELL M. STANLEY. *Univ. of California.*

9:55 **870.** Progress in developing chemical concepts of genetic phenomena. NORMAN H. HOROWITZ. *California Inst. of Technology.*

10:25 **871.** Chemical pathways of nucleic acid biosynthesis. GEORGE B. BROWN. *Sloan-Kettering Inst. for Cancer Research.*

10:55 **872.** The bacteriophage as nucleoproteins. EARL A. EVANS, JR. *Univ. of Chicago.*

11:20 **873.** Enzymatic synthesis of ribonucleic acid-like polynucleotides. SEVERO OCHOA. *New York Univ.*

11:45 **874.** Studies on the structure of ribonuclease. STANFORD MOORE, C. H. W. HIRS AND WILLIAM H. STEIN. *Rockefeller Inst. for Med. Research.*

12:10 Adjournment.

Tuesday Afternoon, April 17, 1:15 p.m.

Protein Synthesis

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM B

Chairman: H. Borsook

1:15 **875.** Leucyl-AMP as an intermediate in amino acid dependent exchange between $P^{32}P^{32}$ and ATP. J. A. DEMOSS,* S. M. GENUTH* AND G. D. NOVELLI. *Western Reserve Univ. School of Medicine.*

1:30 **876.** Effects of nucleosides and their derivatives on protein synthesis in cell-free extracts of pea roots. G. C. WEBSTER. *Ohio State Univ., and California Inst. of Technology.*

1:45 **877.** Incorporation of C^{14}-amino acids into proteins of leaf disks and cell-free fractions of tobacco leaves. M. L. STEPHENSON* AND P. C. ZAMECNIK. *Massachusetts General Hosp. and Harvard Med. Shcool.*

2:00 **878.** Amino acid incorporation into stable microsome preparations. H. SACHS AND A. NEIDLE (intr. by H. WAELSCH). *Columbia Univ. and New York State Psychiatric Inst.*

2:15 **879.** Cell-free incorporation of C^{14}-amino acids into cytoplasmic ribonucleoprotein particles. J. W. LITTLEFIELD* AND E. B. KELLER. *Massachusetts General Hosp.*

2:30 **880.** Incorporation of radioactive lysine into protein. R. SCHWEET (intr. by N. HOROWITZ). *California Inst. of Technology.*

2:45 **881.** Amino acid incorporation into muscle protein. J. R. MCLEAN,* G. L. COHN* AND M. V. SIMPSON. *Yale Univ.*

3:00 **882.** Withdrawn.

3:15 **883.** Inhibition analysis of amino acid incorporation into protein of Ehrlich ascites cell. M. RABINOVITZ, M. E. OLSON* AND D. M. GREENBERG. *Univ. of California School of Medicine.*

3:30 **884.** Inhibition of protein degradation by amino acid analogues. D. STEINBERG AND M. VAUGHAN (intr. by F. S. DAFT). *Natl. Heart Inst.*

3:45 **885.** Enzyme induction and tryptophan metabolism in isolated, perfused rabbit liver. J. B. PRICE* AND L. S. DIETRICH. *Columbia Univ.*

4:00 **886.** Role of glutamine in urea production and protein synthesis in livers of normal and 3′ MeDAB fed rats. W. T. BURKE* AND

L. L. MILLER. *Univ. of Rochester School of Medicine and Dentistry, Atomic Energy Project.*

Enzymes—Proteolytic

TUESDAY, 1:15 P.M.—CONVENTION HALL ROOM C

Chairman: E. L. Smith

1:15 **887.** Patterns of selfdigestion of trypsin and its derivatives. L. TERMINIELLO,* M. BIER* AND F. F. NORD. *Fordham Univ.*

1:30 **888.** Manometric determination and specificity of trypsin and related proteases. E. A. ZELLER, A. DEVI* AND J. A. CARBON.* *Northwestern Univ. Med. School.*

1:45 **889.** Comparison of polarographic results with standard tests of tryptic digestion of plasma proteins. O. H. MÜLLER AND I. YAMANOUCHI.* *State Univ. of New York College of Medicine, Syracuse.* (Physiol.)

2:00 **890.** Studies on enzymatic heterogeneity of crystalline trypsin. L. WEIL AND M. TELKA.* *Eastern Regional Research Lab., Philadelphia.*

2:15 **891.** Hydrolysis of a carbon-carbon bond by trypsin. R. SHAPIRA* AND D. G. DOHERTY. *Oak Ridge Natl. Lab.*

2:30 **892.** Papain-catalyzed reactions of glycine-containing benzoldipeptides with aniline and glycinanilide. G. TOLLIN,* M. WINITZ* AND S. W. FOX. *Iowa State College.*

2:45 **893.** Peptidase activity of swine kidney. F. E. BELL (intr. by E. PAPAGEORGE). *Emory Univ.*

3:00 **894.** Localization, partial purification and characterization of some amino-peptidases from ascites tumors. E. K. PATTERSON AND E. PODBER (intr. by G. TOENNIES). *Inst. for Cancer Research, and Lankenau Hosp. Research Inst.*

3:15 **895.** Procarboxypeptidase. P. J. KELLER,* E. COHEN* AND H. NEURATH. *Univ. of Washington, Seattle.*

3:30 **896.** Gelatinase action of Cl. histolyticum. J. D. OGLE* AND M. A. LOGAN. *Univ. of Cincinnati College of Medicine.*

3:45 **897.** Enzymatic coagulation of rodent semen. H. G. WILLIAMS-ASHMAN, J. BANKS AND G. GOTTERER (intr. by E. V. JENSEN). *Univ. of Chicago.*

Carbohydrate Metabolism I

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM D

Chairman: A. B. Hastings

1:15 **898.** Intestinal absorption of glucose in the rat. W. R. TAYLOR AND R. G. LANGDON (intr. by L. HELLERMAN). *Johns Hopkins Univ. School of Medicine.*

1:30 **899.** Role of lactic acid production in glucose absorption from the intestine. T. H. WILSON (intr. by C. BACHMAN). *Walter Reed Inst. of Med. Research.*

1:45 **900.** Conversion of D-erythrose-4-phosphate plus phosphoenolpyruvate to intermediates in shikimic acid formation. P. R. SRINIVASAN* AND D. B. SPRINSON. *Columbia Univ.*

2:00 **901.** In vitro studies on d-glucosamine metabolism by rat tissues. H. I. NAKADA AND J. B. WOLFE (intr. by D. R. DRURY). *Scripps Clinic and Research Fndn., La Jolla.* (Physiol.)

2:15 **902.** Metabolism of DL-glutamic acid-2-C^{14} by the rat: apparent conversion in vivo of citrate to oxalacetate and acetate. R. J. HILL AND R. E. KOEPPE (intr. by T. P. NASH, JR.). *Univ. of Tennessee.*

2:30 **903.** Factors affecting utilization of oxaloacetate (OAA) and alpha-ketoglutarate (KG). D. B. TYLER AND G. A. FISCHER.* *Univ. of Puerto Rico School of Medicine.* (Physiol.)

2:45 **904.** Hexose oxidation by heart muscle. N. HAUGAARD AND H. ITSKOVITZ.* *Univ. of Pennsylvania School of Medicine.*

3:00 **905.** Influence of low concentrations of potassium ion upon carbohydrate metabolism in isolated rat diaphragm. D. W. CLARKE (intr. by A. M. FISHER). *Univ. of Toronto.*

3:15 **906.** Glucose metabolism by the alga, Ochromonas malhamensis. G. H. REAZIN, JR.* AND MARTIN GIBBS. *Brookhaven Natl. Lab.*

3:30 **907.** Carbohydrate metabolic pathways in Acetobacter suboxydans. P. A. KITOS,* T. E. KING AND V. H. CHELDELIN. *Oregon State College.*

3:45 **908.** Differences in metabolism of glucose and cellobiose by cellulolytic bacterium. F. H. HULCHER AND K. W. KING (intr. by R. W. ENGEL). *Virginia Polytechnic Inst.* (Nutrition.)

4:00 **909.** Apparent synthesis of carbohydrate from fat in developing Ascaris eggs. R. F. PASSEY* AND D. FAIRBAIRN. *McGill Univ., Macdonald College.*

Purine Metabolism

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM E

Chairman: J. M. Buchanan

1:15 **910.** Phosphorolysis of glycinamide ribotide. S. C. HARTMAN (intr. by L. G. WESSON). *Massachusetts Inst. of Technology.*

1:30 **911.** 5-Phosphoribosylamine, a precursor of glycinamide ribotide. D. A. GOLDTHWAIT (intr. by G. R. GREENBERG). *Western Reserve Univ. Med. School.*

1:45 **912.** Single-carbon transfer reactions and purine biosynthesis. L. WARREN AND J. G. FLAKS (intr. by H. C. TRIMBLE). *Massachusetts Inst. of Technology.*

2:00 **913.** New intermediate in purine biosynthesis. L. N. LUKENS* AND J. M. BUCHANAN. *Massachusetts Inst. of Technology.*

2:15 **914.** Formylglycinamidine ribotide and 5-aminoimidazole ribotide—intermediates in purine biosynthesis. B. LEVENBERG AND I. MELNICK (intr. by R. G. HOSKINS). *Massachusetts Inst. of Technology.* (Physiol.)

2:30 **915.** Inhibition by sulfathiazole of biosynthesis of 5-amino-4-imidazolecarboxamide (AICA) by Escherichia coli, strain B96. K. ISHII* AND M. G. SEVAG. *Univ. of Pennsylvania School of Medicine.*

2:45 **916.** Induction by sulfathiazole of alternative pathways for biosynthesis of nucleic acid purines in Escherichia coli. R. C. WOOD AND M. G. SEVAG (intr. by S. MUDD). *Univ. of Pennsylvania School of Medicine* (Pathol.)

3:00 **917.** Role for biotin in purine biosynthesis. A. G. MOAT, C. N. WILKINS, JR. AND H. FRIEDMAN (intr. by A. BONDI). *Hahnemann Med. College* (Immunol.)

3:15 **918.** Vitamin B_{12} and uric acid synthesis in the chick from C^{14} precursors. S. P. MISTRY, K. C. TSENG AND P. B. RAMARAO (intr. by T. S. HAMILTON). *Univ. of Illinois, Urbana.*

3:30 **919.** 8-Hydroxy-7-methylguanine, new purine metabolite in man. B. WEISSMANN* AND A. B. GUTMAN. *Mt. Sinai Hosp. and Columbia Univ.*

3:45 **920.** Substrates and inhibitors for xanthine oxidase. J. B. WYNGAARDEN (intr. by V. E. PRICE). *Natl. Insts. of Health.*

4:00 **921.** Theobromine, theophylline and caffeine metabolism in man. H. H. CORNISH* AND A. A. CHRISTMAN. *Univ. of Michigan.*

Plant Biochemistry

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 6

Chairman: R. H. Burris

1:15 **922.** Respiratory activity of normal and bruised red tart cherry (Prunus cerasus). R. L. POLLACK AND C. H. HILLS (intr. by S. R. HOOVER). *Eastern Utilization Research Branch, U. S. Dept. Agric., Philadelphia.*

1:30 **923.** Isolation from 'acerola' juice of fraction containing bound ascorbic acid. A. DEL CAMPILLO* AND C. F. ASENJO. *Univ. of Puerto Rico School of Medicine.*

1:45 **924.** Conversion of labeled sugars to L-ascorbic acid in ripening strawberries. F. A. LOEWUS, R. JANG AND C. G. SEEGMILLER (intr. by E. F. JANSEN). *Western Utilization Research Branch, U. S. Dept. Agric., Albany.*

2:00 **925.** Uridine diphosphate pentoses in mung bean seedlings. V. GINSBURG,* P. K. STUMPF AND W. Z. HASSID. *Univ. of California, Berkeley.*

2:15 **926.** Formation of radioactive polyenes and carotenoids in ripening tomatoes. ELIE A. SHNEOUR* AND I. ZABIN. *Univ. of California Med. Ctr., Los Angeles.*

2:30 **927.** Biogenesis of pyridine ring in higher plants. S. ARONOFF. *Iowa State College.*

2:45 **928.** Reactions of keto acids catalyzed by plant enzyme preparations. E. E. CONN AND S. L. SEKI.* *Univ. of California, Berkeley.*

3:00 **929.** Effect of oxaloacetate on pyruvate and succinate oxidation by avocado particles. M. ABRAMSKY AND J. B. BIALE (intr. by S. ROBERTS). *Univ. of California, Los Angeles.*

3:15 **930.** Polyphenol oxidase in Piricularia oryzae. H. A. NEUFELD, F. M. LATTERELL AND R. L. WEINTRAUB (intr. by C. R. BREWER). *Camp Detrick.*

3:30 **931.** Stereospecificity of mushroom tyrosinase. J. HARRIS AND D. J. CAVENAUGH (intr. by J. A. MUNTZ). *Albany Med. College, and Univ. of Tennessee School of Medicine.*

3:45 **932.** Saturated fatty acid peroxidase. P. K. STUMPF. *Univ. of California, Berkeley.*

4:00 **933.** Influence of assimilatory quotient, cell anabolism and growth on photosynthetic quantum efficiency. DEAN BURK, G. HOBBY* AND J. HUNTER.* *Natl. Cancer Inst., Bethesda, and Max Planck Inst. for Cell Physiology, Berlin-Dahlem.*

Microorganisms II

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 7

Chairman: E. E. Snell

1:15 **934.** Sodium and potassium requirements of marine bacteria. R. A. MACLEOD AND E. ONOFREY.* *Pacific Fisheries Exptl. Station, Vancouver.*

1:30 **935.** Growth of plasmodial slime mold in pure culture on soluble medium. J. W. DANIEL* AND H. P. RUSCH. *Univ. of Wisconsin Med. School* (Pathol.)

1:45 **936.** Studies with an 8-azaguanine-resistant strain of Lactobacillus casei. G. B. ELION, S. SINGER* AND G. B. HITCHINGS. *Wellcome Research Labs., Tuckahoe, N. Y.*

2:00 **937.** Uridine diphosphate conjugate as growth requirement for Paramecium aurelia, Variety 4, Stock 51.7 (Sensitives). G. R. YOUNG* AND W. J. VAN WAGTENDONK. *Indiana Univ., Bloomington.*

2:15 **938.** N-glucosylglycine-requiring mutants of Escherichia coli. D. ROGERS (intr. by J. P. CHANDLER). *Univ. of Michigan.*

2:30 **939.** Inhibition of sugar utilization by nystatin. J. O. LAMPEN, E. R. MORGAN* AND A. C. SLOCUM.* *Squibb Inst. for Med. Research.*

2:45 **940.** Preparation and antimicrobial activity of crystalline conalbumin. R. E. FEENEY AND M. B. RHODES.* *Univ. of Nebraska.*

3:00 **941.** Path of glutamate decomposition by Clostridium tetanomorphum. H. A. BARKER, J. T. WACHSMAN,* A. MUNCH-PETERSEN* AND M. A. WILSON.* *Univ. of California, Berkeley.*

3:15 **942.** Formation of lactic and fumaric acid by Rhizopus MX. M. MARGULIES (intr. by W. VISHNIAC). *Yale Univ.*

3:30 **943.** The glycogen metabolism of Tetrahymena pyriformis. J. F. HOGG AND C. WAGNER (intr. by L. LOUIS). *Univ. of Michigan.*

Biochemistry Society Business Meeting

TUESDAY, 4:30 P.M.—CONVENTION HALL, ROOM B

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONVENTION HALL, BALLROOM

Program on page 628

Wednesday Morning, April 18, 9:00 a.m.

Carbohydrate Metabolism II

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM B

Chairman: M. Gibbs

9:00 **944.** Effect of CO_2 partial pressure on photosynthetic products in Sedum leaves. N. E. TOLBERT AND L. M. ROHRBAUGH.* *Oak Ridge Natl. Lab.*

9:15 **945.** Reduction of L-xylulose to xylitol by an enzyme of guinea pig liver mitochondria. O. TOUSTER, V. H. REYNOLDS,* R. M. HUTCHESON* AND S. HOLLMANN.* *Vanderbilt Univ. Med. School.*

9:30 **946.** Enzymatic interconversion of ribulose 5-phosphate and xylulose 5-phosphate. J. HURWITZ (intr. by H. G. STEINMAN). *Natl. Insts. of Health.*

9:45 **947.** Role of xylulose 5-phosphate in transketolase reaction. B. L. HORECKER AND P. Z. SMYRNIOTIS.* *Natl. Insts. of Health.*

10:00 **948.** An alternative pathway of the ribose-5-phosphate metabolism in human red cells. Z. DISCHE AND H. SHIGEURA.* *Columbia Univ.*

10:15 **949.** An enzymatic defect in a congenital human disease, galactosemia. E. P. ANDERSON,* K. J. ISSELBACHER* AND H. M. KALCKAR. *Natl. Insts. of Health.*

10:30 **950.** New pathways in oxidation of D-galactose and of D-arabinose. M. DOUDOROFF, J. DELEY,* N. J. PALLERONI* AND R. WEIMBERG.* *Univ. of California, Berkeley.*

10:45 **951.** Synthesis of lactose. Unequal distribution of C^{14} in glucose and galactose. H. G. WOOD AND P. SCHAMBYE.* *Western Reserve Univ. School of Medicine, and Royal Veterinary and Agric. College, Copenhagen.*

11:00 **952.** Enzymatic synthesis of an alpha 1,3′-linked glucosyl disaccharide. J. H. PAZUR, T. BUDOVICH* AND C. TIPTON.* *Univ. of Nebraska.*

11:15 **953.** Enzymatic hydrolysis of glucuronolactone. F. EISENBERG, JR. AND J. B. FIELD.* *Natl. Insts. of Health.*

11:30 **954.** Conversion of D-glucuronolactone-6-C^{14} and L-gulonolactone-1-C^{14} to L-ascorbic-1-C^{14} acid in the rat. J. J. BURNS, C. EVANS* AND E. H. MOSBACH.* *New York Univ. and Columbia Univ. Research Services, Goldwater Memorial Hosp., and the Natl. Insts. of Health.* (Pharmacol.)

11:45 **955.** Synthesis and metabolism of L-ascorbic acid-2,3,4,5,6-C^{14}. S. L. RUDOFF,* R. R. BECKER* AND C. G. KING. *Columbia Univ.*

Enzymes—General I

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM C

Chairman: Arthur H. Smith

9:00 **956.** Mechanism of in vitro hydroxylation. R. C. KRUEGER (intr. by F. F. HEYROTH). *Univ. of Cincinnati College of Medicine.*

9:15 **957.** Michaelis-Menten kinetics revisited. M. F. MORALES. *U.S. Naval Med. Research Inst.* (Physiol.)

9:30 **958.** Role of iron, molybdenum and flavin in activity of Clostridium butylicum hydrogenase. H. D. PECK, JR.* AND H. GEST. *Western Reserve Univ. School of Medicine.*

9:45 **959.** Rate of reduction of various substrates by the hydrogenase system. A. I. KRASNA* AND D. RITTENBERG. *Columbia Univ.*

10:00 **960.** Pyrophosphate exchange and active luciferin formation by firefly luciferase. W. D. MCELROY AND A. A. GREEN.* *Johns Hopkins Univ.*

10:15 **961.** Squid rhodopsin. R. HUBBARD AND R. C. C. ST. GEORGE.* *Harvard Univ.*

10:30 **962.** Acid-base properties of rhodopsin and opsin. G. WALD AND C. M. RADDING.* *Harvard Univ.*

10:45 **963.** Competition for action of mutarotase by aldoses exhibiting toxicity. A. S. KESTON. *New York Univ. College of Medicine.*

11:00 **964.** α-Keto acid keto-enol tautomerase. B. M. PITT* AND W. E. KNOX. *New England Deaconess Hosp. and Harvard Med. School.*

11:15 **965.** Identity of diisopropylfluorophosphatase and acylase. L. A. MOUNTER (intr. by S. LUDEWIG). *Univ. of Virginia School of Medicine.*

11:30 **966.** Solvation of DDT by lipoprotein for study of DDT-dehydrochlorinase. H. LIPKE, H. CRESPI, C. W. KEARNS AND B. R.

RAY (intr. by R. E. JOHNSON). *Univ. of Illinois.*

11:45 **967.** Micromethods for assay of L-glutamic acid dehydrogenase and D-amino acid oxidase in animal tissues. W. J. WINGO AND W. D. THOMPSON.* *Univ. of Alabma Med. College and School of Dentistry.*

Plasma Protein Chemistry

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM D

Chairman: J. T. Edsall

9:00 **968.** Comparative study of plasma proteins of amphibians and reptiles. H. C. DESSAUER AND W. FOX (intr. by F. G. BRAZDA). *Louisiana State Univ. School of Medicine.*

9:15 **969.** Denaturation of bovine serum albumin. M. LEVY AND R. C. WARNER. *New York Univ. College of Medicine.*

9:30 **970.** Hydrodynamic properties, molecular configuration and reactivity of bovine serum albumin. H. A. SCHERAGA, G. I. LOEB* AND M. L. WAGNER.* *Cornell Univ.*

9:45 **971.** Dimerization of bovine serum albumin with mercurials in water and in concentrated urea. C. M. KAY* AND J. T. EDSALL. *Harvard Univ.*

10:00 **972.** Heterogeneity of serum albumin. R. BENESCH AND R. E. BENESCH.* *Univ. of Wisconsin.*

10:15 **973.** Beta globulins of sera with altered electrophoretic patterns. J. SCHULTZ, G. F. GRANNIS,* H. B. KIMMEL* AND HARRY SHAY.* *Temple Univ. School of Medicine.*

10:30 **974.** Macroglobulins in human sera. A. H. SEHON, L. GYENES, J. GORDON, M. RICHTER AND B. ROSE (intr. by J. S. L. BROWNE). *McGill Univ. Clinic.* (Physiol.)

10:45 **975.** Disulfide bonds in bovine γ-globulin. G. MARKUS* AND F. KARUSH. *Univ. of Pennsylvania School of Medicine and The Children's Hosp. of Philadelphia.* (Immunol.)

11:00 **976.** Heavy components of human serum. G. WALLENIUS,* R. TRAUTMAN,* E. C. FRANKLIN* AND H. G. KUNKEL. *Rockefeller Inst. for Med. Research.*

11:15 **977.** In vitro precipitation of gelatin by heparin and a plasma factor. I. M. MURRAY (intr. by E. MUNTWYLER). *State Univ. of New York Med. College, Brooklyn.*

Cytochemistry

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM E

Chairman: M. Laskowski

9:00 **978.** Metal content of subcellular rat liver fractions. R. E. THIERS AND B. L. VALLEE (intr. by P. L. MUNSON). *Harvard Med. School and Peter Bent Brigham Hosp.*

9:15 **979.** Intracellular localization of pancreatic amylase. A. K. LAIRD. *Argonne Natl. Lab.* (Pathol.)

9:30 **980.** Glycogen particles in rat liver homogenates. A. D. BARTON (intr. by D. E. SMITH). *Argonne Natl. Lab.* (Physiol.)

9:45 **981.** Incorporation of C^{14} formate into the free amino acids and proteins of cell nuclei of various tissues of the rabbit. E. R. M. KAY (intr. by W. K. SMITH). *Univ. of Glasgow and Acadia Univ.* (Physiol.)

10:00 **982.** Intracellular distribution and metabolic heterogeneity of ribonucleic acid (RNA) in regenerating liver. C. D. JARDETZKY* AND C. P. BARNUM. *Univ. of Minnesota Med. School.*

10:15 **983.** Mitochondria isolated from polyvinylpyrollidone-sucrose homogenates of rat liver. A. B. NOVIKOFF. *Albert Einstein College of Medicine.*

10:30 **984.** Enzymes associated with a mitochondrial membrane fraction. P. SIEKEVITZ AND M. L. WATSON.* *Rockefeller Inst.*

10:45 **985.** Incorporation of adenosine-5′-phosphate into ribonucleic acid (RNA) by tumor homogenates. A. R. P. PATERSON* AND G. A. LEPAGE. *Univ. of Wisconsin.*

11:00 **986.** Release and splitting of the DPN in mitochondria. F. E. HUNTER, JR., J. LEVY,* J. DAVIS* AND L. CARLAT.* *Washington Univ. School of Medicine.*

11:15 **987.** Participation of microsomes in aerobic pyrophosphate formation. F. T. KENNEY* AND S. P. COLOWICK. *Johns Hopkins Univ.*

11:30 **988.** Factors influencing intracellular pyridine nucleotides. K. B. JACOBSON (intr. by E. V. MCCOLLUM). *Johns Hopkins Univ.*

11:45 **989.** Structure and function of mitochondria in irreversible hemorrhagic shock. J. G. STRAWITZ AND H. HIFT (intr. by W. H. MCSHAN). *Univ. of Wisconsin Med. School.*

Symposium on Teaching Practices in Biochemistry

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, BALLROOM

Chairman: J. Murray Luck

9:00 **990.** Opening remarks by the Chairman. J. MURRAY LUCK. *Stanford Univ.*

9:10 **991.** Preliminary survey of the teaching of biochemistry in the United States. BENJAMIN HARROW. *College of the City of New York.*

9:40 **992.** Current practices in undergraduate and graduate training of biochemists. C. A. ELVEHJEM. *Univ. of Wisconsin.*

10:10 **993.** Planning a course in medical biochemistry in a new school: reunion with physiology. ABRAHAM WHITE AND HENRY D. LAUSON. *Albert Einstein College of Medicine.*

10:40 **994.** The teaching of biochemistry in an integrated curriculum. HARLAND G. WOOD. *Western Reserve Univ.*

11:10 **995.** Graduate training in the medical sciences. ERIC G. BALL. *Harvard Univ.*

11:40 Open discussion.

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

Wednesday Afternoon, April 18, 1:15 p.m.

Complex Lipids, Chemistry and Metabolism

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM A

Chairman: W. R. Bloor

1:15 **996.** Studies on brain strandin. J. FOLCH, J. A. MEATH* AND S. BOGOCH.* *Harvard Med. School.*

1:30 **997.** Simple procedure for isolation of brain sulfatides. M. LEES (intr. by A. POPE). *McLean Hosp. Research Lab., Waverley, Mass.*

1:45 **998.** Chemical composition of cerebral tissue. N. S. OLSEN AND D. H. CLOUET.* *VA Hosp., Nashville.*

2:00 **999.** Paper chromatography of model phospholipide mixtures. R. F. WITTER, G. V. MARINETTI* AND E. STOTZ. *Univ. of Rochester School of Medicine and Dentistry.*

2:15 **1000.** Chromatographic studies of tissue phospholipides. G. V. MARINETTI,* R. F. WITTER AND E. STOTZ. *Univ. of Rochester School of Medicine and Dentistry.*

2:30 **1001.** Nature of yeast cephalins. D. J. HANAHAN AND D. N. RHODES.* *Univ. of Washington, Seattle, and Low Temperature Research Station, Cambridge, England.*

2:45 **1002.** Separation of sphingolipides by adsorption chromatography. B. WEISS (intr. by C. LANDIS). *New York State Psychiatric Inst. and Columbia Univ.* (Physiol.)

3:00 **1003.** Enzymatic conversion of CDP-choline and CDP-ethanolamine to phospholipides. S. B. WEISS* AND E. P. KENNEDY. *Ben May Lab. for Cancer Research, and Univ. of Chicago.*

3:15 **1004.** Labeling of brain phospholipid in vitro. W. C. MCMURRAY, J. F. BERRY AND K. P. STRICKLAND (intr. by R. J. ROSSITER). *Univ. of Western Ontario.*

3:30 **1005.** Labeling of different portions of phosphoglyceride molecule in rat liver and brain slices. E. T. PRITCHARD (intr. by F. C. HEAGY). *Univ. of Western Ontario, London.*

3:45 **1006.** Low-aqueous filter paper electrophoresis: applications to phosphatides and bile acids. J. E. GARVIN (intr. by R. P. GEYER). *Harvard School of Public Health.* (Nutr.)

4:00 **1007.** Galactolipid metabolism. N. S. RADIN, F. B. MARTIN, J. R. BROWN AND J. R. ALLEN (intr. by M. A. LIPTON). *VA Research Hosp. and Northwestern Univ. Med. School, Chicago.*

Oxidative Phosphorylation I

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM B

Chairman: A. L. Lehninger

1:15 **1008.** Reconstructed systems of glycolysis and oxidative phosphorylation. S. GATT,* I. KRIMSKY* AND E. RACKER. *Public Health Research Inst., New York.*

1:30 **1009.** Effects of arsenite and azide on phosphate-turnover reactions in mitochondria. M. SWANSON. *Bowman Gray School of Medicine.*

1:45 **1010.** Inhibition by dinitrophenol of phosphate-dependent catalysis of sulfite oxidation by metals. I. FRIDOVICH* AND P. HANDLER. *Duke Univ. School of Medicine.*

2:00 **1011.** Phosphorylation coupled to the oxidation and reduction of silicomolybdate in rat liver mitochondria. E. E. JACOBS* AND D. R. SANADI. *Univ. of Wisconsin and Univ. of California Med. School, Berkeley.*

2:15 **1012.** Phosphorylation of adenine nucleotides by mitochondria. B. C. PRESSMAN (intr. by H. A. LARDY). *Univ. of Wisconsin.*

2:30 **1013.** P^{32} and O^{18} incorporation into intramitochondrial phosphate compounds during oxidative phosphorylation. P. D. BOYER, L. ERNSTER* AND O. LINDBERG.* *Univ. of Minnesota and Wenner-Gren Inst., Stockholm.*

2:45 **1014.** Phosphorylation of Mitochrome coupled with electron transport over cytochrome c. B. D. POLIS AND H. W. SHMUKLER (intr. by D. L. DRABKIN). *Aviation Med. Acceleration Lab., Johnsville, and Univ. of Pennsylvania Grad. School of Medicine.*

3:00 **1015.** ATP-ase and P^{32}-exchange reactions in phosphorylating enzyme complex from mitochondria. C. COOPER* AND A. L. LEHNINGER. *Johns Hopkins Univ. School of Medicine.*

3:15 **1016.** Oxidative phosphorylation with mitochondria and particles of beef heart. R. L. LESTER,* D. M. ZIEGLER* AND D. E. GREEN. *Univ. of Wisconsin.*

3:30 **1017.** Oxidative phosphorylation of isolated yeast granules. P. M. NOSSAL,* B. KEECH* AND M. F. UTTER. *Univ. of Adelaide, Adelaide, Australia, and Western Reserve Univ. School of Medicine.*

3:45 **1018.** Light-induced oxidation-reduction changes in Rhodospirillum rubrum extracts. D. M. GELLER* AND J. D. GREGORY. *Massachusetts General Hosp., and Harvard Med. School.*

4:00 **1019.** Respiration and phosphorylation in extracts of Rhodospirillum rubrum. L. SMITH AND M. BALTSCHEFFSKY (intr. by D. GODDARD). *Univ. of Pennsylvania.*

Enzymes—General II

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM C

Chairman: D. M. Greenberg

1:15 **1020.** Properties of threonine aldolases. M. A. KARASEK* AND D. M. GREENBERG. *Univ. of California, Berkeley.*

1:30 **1021.** Oxidation of sulfide by an adaptive system in rat liver. C. F. BAXTER,* R. VAN REEN* AND P. B. PEARSON. *Johns Hopkins Univ.*

1:45 **1022.** Studies on sulfate activation. P. W. ROBBINS* AND F. LIPMANN. *Massachusetts General Hosp. and Harvard Med. School.*

2:00 **1023.** Pyrophosphatases of swine brain. U. S. SEAL (intr. by F. BINKLEY). *Emory Univ.*

2:15 **1024.** Mechanism of ATP activating effect on brain AMP deaminase. J. MENDICINO (intr. by H. Z. SABLE). *Western Reserve Univ. Med. School.*

2:30 **1025.** Purification of adenylic-5′-phosphoric acid deaminase. YA-PIN LEE (intr. by M. J. JOHNSON). *Univ. of Wisconsin.*

2:45 **1026.** Crystallization of myokinase. L. NODA AND S. A. KUBY.* *Univ. of Wisconsin.*

3:00 **1027.** Transferase activity of β-glucuronidase preparations. W. H. FISHMAN AND S. GREEN.* *Tufts Univ. School of Medicine.*

3:15 **1028.** Dimethylthetin - homocysteine methylpherase. J. DURELL AND D. G. ANDERSON (intr. by S. KAUFMAN). *Natl. Inst. of Mental Health.*

3:30 **1029.** Mammalian transamidinase. MARIA FULD. *Grad. School of Public Health, Univ. of Pittsburgh.*

3:45 **1030.** Transmination of certain aliphatic amino acids by enzyme from chicken liver. W. T. JENKINS* AND I. W. SIZER. *Massachusetts Inst. of Technology.*

4:00 **1031.** Characterization of kynurenine transminase of rat kidney. M. MASON (intr. by L. MILLER). *Univ. of Michigan.*

Amino Acid Chemistry

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM D

Chairman: H. B. Vickery

1:15 **1032.** Determination of carnosine and anserine. D. C. SUTFIN,* H. M. HINES AND T. C. WINNICK. *State Univ. of Iowa.* (Physiol.)

1:30 **1033.** Rapid quantitative separations of glutamic, aspartic and cysteic acids by ion-exchange chromatography. J. E. MULDREY AND W. H. MARTINEZ (intr. by W. B. WENDEL) *Southern Regional Research Lab., and Loyola Univ.*

1:45 **1034.** Reaction of cyanide with cysteine and other sulfhydryl compounds. JULIUS GOLUBOW,* R. K. BARCLAY AND C. C. STOCK. *Sloan-Kettering Inst. for Cancer Research and Cornell Univ. Grad. School of Med. Sciences.*

2:00 **1035.** Oxidation of cysteine to cystine by oxygen and effect of iron on reaction rate. F. L. RODKEY. *Harvard Med. School.*

2:15 **1036.** Synthesis of amino acids under possible primitive earth conditions. S. L. MILLER (intr. by G. L. FOSTER). *California Inst. of Technology, Pasadena.*

2:30 **1037.** Isolation of DNP-peptides from DNP-polyvalyl-proteins. A. STRACHER, W. H. KONIGSBERG AND R. R. BECKER (intr. by M. L. CALDWELL). *Columbia Univ.*

2:45 **1038.** Synthesis of thio-esters of acylated glycine. V. D. WIEBELHAUS, A. F. HOGANS AND D. C. TITUS (intr. by K. H. BEYER). *Sharp and Dohme, West Point, Pa.* (Pharmacol.)

3:00 **1039.** Convenient procedure for the synthesis of 1-C^{14} amino acids. H. J. FROMM (intr. by B. DEBOER). *Univ. of North Dakota Med. School.* (Pharmacol.)

3:15 **1040.** C^{14}-isotope effect on ion exchange chromatography of specifically labeled amino acids. K. A. PIEZ* AND H. EAGLE. *Natl. Inst. of Dental Research and Natl. Microbiological Inst.* (Pharmacol.)

3:30 **1041.** Preparative chromatography of amino acids by carrier displacement. D. L. BUCHANAN. *VA Hosp., West Haven, Conn.*

Viruses, Nucleoproteins and DNA

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM E

Chairman: D. G. Doherty

1:15 **1042.** Purification of nucleoprotein B from rat liver cytoplasm. M. L. PETERMANN

AND M. G. HAMILTON.* *Sloan-Kettering Inst. for Cancer Research.*

1:30 **1043.** Electrochromatography of large particles: poliomyelitis virus and tobacco mosaic virus. A. KARLER (intr. by P. L. KIRK). *Karler Labs., Berkeley, Calif.*

1:45 **1044.** Unit particle lengths of strains of tobacco mosaic virus. J. W. ROWEN AND W. GINOZA (intr. by N. S. MACDONALD). *Atomic Energy Project, Univ. of California School of Medicine, Los Angeles.*

2:00 **1045.** Dissociation of nucleohistones. C. F. CRAMPTON. *Rockefeller Inst. for Med. Research.*

2:15 **1046.** Interaction of nucleic acid with some cationic dyes. M. D. SHOENBERG,* C. LOESER* AND J. L. ORBISON. *Univ. of Rochester School of Medicine and Dentistry, and Western Reserve Univ.* (Pathol.)

2:30 **1047.** Rotatory dispersion of DNA and its derivatives. B. H. LEVEDAHL AND T. W. JAMES (intr. by T. L. JAHN). *Univ. of California, Los Angeles.* (Physiol.)

2:45 **1048.** Effects of salt on structure of deoxypentose nucleic acid. L. F. CAVALIERI, M. ROSOFF* AND B. ROSENBERG.* *Sloan-Kettering Inst. for Cancer Research.*

3:00 **1049.** Titrimetric evidence for existence of several DNA configurations: console model universal titrator. E. L. DUGGAN AND V. L. STEVENS.* *Univ. of California School of Medicine, Berkeley.*

3:15 **1050.** Enzymatic degradation of deoxyribonucleic acid. V. N. SCHUMAKER,* G. E. RICHARDS* AND H. K. SCHACHMAN. *Univ. of California, Berkeley.*

3:30 **1051.** General features of the nucleotide arrangement in deoxyribonucleic acids. H. S. SHAPIRO* AND E. CHARGAFF. *Columbia Univ.*

3:45 **1052.** Spectral changes occurring during hydrolysis of di-deoxyribonucleotides by phosphodiesterase. M. PRIVAT DE GARILHE* AND M. LASKOWSKI. *Marquette Univ. School of Medicine.*

4:00 **1053.** Enzymatic degradation of deoxyribonucleic acid containing 5-bromouracil. R. L. SINSHEIMER. *Iowa State College.*

Metabolic Effects of Insulin

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ARENA STAGE

Chairman: W. C. Stadie

1:15 **1054.** Insulin antagonist activity of serum in diabetic acidosis. J. B. FIELD AND DEWITT STETTEN, JR. *Natl. Insts. of Health.*

1:30 **1055.** Increase of a liver enzyme in alloxan diabetes and reversal by insulin. A. H. MEHLER, E. G. MCDANIEL* AND J. M. HUNDLEY.* *Natl. Insts. of Health.*

1:45 **1056.** Effect of fasting and alloxan on rat liver desoxyribonucleic acid (DNA). E. CONRAD* AND A. D. BASS. *Vanderbilt Univ. School of Medicine.* (Pharmacol.)

2:00 **1057.** Effect of insulin on metabolism of C^{14} acetate by rat kidney and liver slices. J. KATZ AND J. WONG.* *Univ. of California, Berkeley.*

2:15 **1058.** Glucogenesis from 1-C^{14}-acetate in nondiabetic and diabetic man. W. W. SHREEVE. *Brookhaven Natl. Lab.*

2:30 **1059.** Mode of action of insulin as related to lipogenesis in isolated perfused rat liver. D. E. HAFT (intr. by E. L. ALLING). *Atomic Energy Project, Univ. of Rochester School of Medicine and Dentistry.* (Pathol.)

2:45 **1060.** Coexistence of insulin-responsive and insulin-nonresponsive glycolytic systems in rat diaphragm. W. N. SHAW* AND W. C. STADIE. *Univ. of Pennsylvania.*

3:00 **1061.** Glycogenesis in the liver in normal and depancreatized rats. R. W. LONGLEY,* O. H. ALVIG* AND J. H. ROE. *George Washington Univ. School of Medicine.*

3:15 **1062.** Effect of insulin and alloxan diabetes on glucose transport into cells of perfused rat heart. C. R. PARK, L. H. JOHNSON* AND J. H. WRIGHT, JR.* *Vanderbilt Univ. Med. School.*

3:30 **1063.** Pathways of glucose metabolism in diabetic liver. J. ASHMORE,* G. F. CAHILL, JR.* AND A. B. HASTINGS. *Harvard Med. School.*

3:45 **1064.** Effect of insulin on blood levels of infused pentoses in man. S. SEGAL, J. B. WYNGAARDEN AND J. FOLEY (intr. by B. BLOOM). *Natl. Insts. of Health.*

4:00 **1065.** Effect of glucose blocking compound—2-deoxyglucose—on other fuels in extrahepatic tissues. A. N. WICK, B. BRITTON* AND R. GRABOWSKI.* *Scripps Clinic and Research Fndn., La Jolla.*

Steroid Hormones, Biosynthesis and Actions

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 7

Chairman: R. I. Dorfman

1:15 **1066.** Biological synthesis of sulfuric acid esters of steroid hormones or their metabolites. R. H. DE MEIO, C. LEWYCKA* AND M. WIZERKANIUK.* *Jefferson Med. College.*

1:30 **1067.** Metabolism of some postulated sterol intermediates. I. C. WELLS. *State Univ. of New York College of Medicine, Syracuse.*

1:45 **1068.** Role of adenosine triphosphate in enzymatic activation of carbon dioxide. B. K. BACHHAWAT,* J. F. WOESSNER, JR.* AND M. J. COON. *Univ. of Michigan Med. School.*

2:00 **1069.** Biosynthesis of β-hydroxy-β-methyglutaric acid (HMG). H. RUDNEY. *Western Reserve Univ. Med. School.*

2:15 **1070.** Conversion of acetate to C_{19} steroids by human adrenal gland slices. E. BLOCH,* G. PINCUS AND R. I. DORFMAN. *Worcester Fndn. for Exptl. Biology.*

2:30 **1071.** Increased incorporation of radioacetate into adrenal cortisol and corticosterone in scurvy. S. BURSTEIN AND E. M. NADEL (intr. by C. G. BAKER). *Worcester Fndn. for Exptl. Biology, and Natl. Cancer Inst.*

2:45 **1072.** Reduction of corticosteroid secretion in pantothenic acid deficient rats. B. B. LONGWELL, A. E. REIF* AND E. HANSBURY.* *Lovelace Fndn., Albuquerque.*

3:00 **1073.** Effect of ACTH on corticosteroid content of adrenal tissue. R. C. HAYNES, JR. AND L. BERTHET (intr. by J. LEONARDS). *Western Reserve Univ.*

3:15 **1074.** Effects of sterols on water and electrolyte excretion. D. A. CLARK (intr. by A. C. KURTZ). *VA Hosp., McKinney, Texas, and Univ. of Texas Southwestern Med. School.*

3:30 **1075.** Effect of testosterone propionate on incorporation of glycine into mouse kidney protein. E. H. FRIEDEN. *Tufts Univ. School of Medicine.*

3:45 **1076.** Liver coenzyme A in hypophysectomized immature rats. P. D. BARTLETT, P. GRIMMETT* AND S. SHELATA.* *E. B. Ford Inst. for Med. Research.*

4:00 **1077.** Influence of prolactin on coenzyme A of lactating mammary tissue. M. S. READ AND R. O. MOORE (intr. by J. B. BROWN). *Ohio State Univ.*

50th Anniversary Dinner

WEDNESDAY, 7:00 P. M.—CHALFONTE-HADDON HALL

Thursday Morning, April 19, 9:00 a.m.

Lipids: Intermediary Metabolism

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM B

Chairman: S. Weinhause

9:00 **1078.** Adenyl-acylates in the activation of acyl groups. P. BERG AND G. NEWTON.* *Washington Univ. School of Medicine.*

9:15 **1079.** Preparation and properties of butyryl adenylate. P. T. TALBERT,* F. M. HUENNEKENS AND B. W. GABRIO. *Univ. of Washington.*

9:30 **1080.** Ketogenesis in mammary tissue. C. TERNER (intr. by G. PINCUS). *Univ. of Reading, England, and Worcester Fndn. for Exptl. Biology.* (Physiol.)

9:45 **1081.** β-hydroxybutyrate and acetoacetate oxidation by heart muscle mitochondria. R. W. VON KORFF. *Univ. of Minnesota.*

10:00 **1082.** Acetoacetyl glutathione thioesterase and a mechanism of deacylation of acetoacetyl CoA. J. R. STERN AND G. I. DRUMMOND.* *Western Reserve Univ.*

10:15 **1083.** β-Hydroxyisobutyric dehydrogenase. W. G. ROBINSON (intr. by H. N. CHRISTENSEN). *Univ. of Michigan.*

10:30 **1084.** Enzymatic degradation of β-ketoadipic acid. M. KATAGIRI* AND O. HAYAISHI. *Natl. Insts. of Health.*

10:45 **1085.** Propionate oxidation by cell-free extracts of Clostridium propionicum. E. R. STADTMAN. *Natl. Insts. of Health.*

11:00 **1086.** Enzymatic conversion of propionate to succinate. M. FLAVIN, H. CASTRO-MENDOZA* AND W. S. BECK.* *New York Univ. College of Medicine.*

11:15 **1087.** Relationship of propionate and succinate in the Propionibacterium. F. W. LEAVER AND R. STJERNHOLM (intr. by J. H. JONES). *Univ. of Pennsylvania School of Veterinary Medicine and Western Reserve Univ. School of Medicine.*

11:30 **1088.** Formaldehyde fixation by Propionibacterium arabinosum as determined by mass analysis of C^{13}-propionate. S. H. POMERANTZ (intr. by W. F. H. M. MOMMAERTS). *Western Reserve Univ. Med. School.*

Enzymes of Carbohydrate Metabolism

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM C

Chairman: C. F. Cori

9:00 **1089.** Electrophoretic and enzymatic heterogeneity of beta-galactosidase of E. coli. F. ALADJEM,* J. DUBNOFF, D. H. CAMPBELL* AND E. BARTRON.* *California Inst. of Technology, Pasadena.*

9:15 **1090.** Salt effects in the yeast hexokinase system. J. B. MELCHIOR AND N. C. MELCHIOR.* *Graduate School and Stritch School of Medicine, Loyola Univ.*

9:30 **1091.** An acid hexokinase from yeast. T. SCHARFF AND A. ROTHSTEIN (intr. by H. C. HODGE). *Atomic Energy Project, Univ. of Rochester School of Medicine and Dentistry.*

9:45 **1092.** Phosphorylase b to phosphorylase a reaction. E. G. KREBS AND E. H. FISCHER. *Univ. of Washington, Seattle.*

10:00 **1093.** Phosphorylase and Q-enzyme in developing corn kernels. H. FUWA (intr. by A. K. BALLS). *Purdue Univ.*

10:15 **1094.** Glucose 1 phosphate transphosphorylase. J. B. SIDBURY, JR.,* L. ROSENBERG* AND V. A. NAJJAR. *Johns Hopkins Hosp.*

10:30 **1095.** Resolution of cellulolytic enzymes from Myrothecium verrucaria. J. H. HASH AND K. W. KING (intr. by A. E. SCHAEFER). *Virginia Polytechnic Inst., Blacksburg.* (Nutr.)

10:45 **1096.** Mechanism of action of phosphoglucose isomerase. Y. J. TOPPER. *Natl. Insts. of Health.*

11:00 **1097.** Mechanism of action of muscle triose phosphate isomerase. S. V. RIEDER AND I. A. ROSE (intr. by S. SIMMONDS). *Yale Univ.*

11:15 **1098.** Mechanism of action of heart muscle lactic dehydrogenase. G. W. SCHWERT AND Y. TAKENAKA.* *Duke Univ. School of Medicine.*

11:30 **1099.** Zinc, a component of alcohol dehydrogenase of horse liver. B. L. VALLEE AND F. L. HOCH (intr. by G. P. BERRY). *Harvard Med. School and Peter Bent Brigham Hosp.* (Immunol.)

11:45 **1100.** Phosphate uptake in the erythrocytes of heated human blood. R. NATVIG AND O. SKAUG (intr. by H. HOCH). *Med. College of Virginia.*

Protein Chemistry

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM D

Chairman: W. H. Stein

9:00 **1101.** Solubility transformation of α-lactalbumin. C. A. ZITTLE. *Eastern Regional Research Lab., Philadelphia.*

9:15 **1102.** Myxomyosin, a protein related to structure and streaming of cytoplasm. P. O. P. TS'O, L. EGGMAN AND J. VINOGRAD (intr. by J. BONNER). *California Inst. of Technology, Pasadena.*

9:30 **1103.** Characterization of myosin from normal and failing dog heart. H. STERN,* E. ELLENBOGEN* AND R. E. OLSON. *Graduate School of Public Health, Univ. of Pittsburgh.*

9:45 **1104.** Light scattering studies on the actomyosin-adenosinetriphosphate system. J. GERGELY AND H. KOHLER.* *Massachusetts General Hosp., and Harvard Med. School.*

10:00 **1105.** Colloidal behavior of high molecular weight bacterial polyglutamates. H. EDELHOCH,* J. B. BATEMAN AND C. B. THORNE.* *Univ. of Kansas Med. School and Camp Detrick, Md.* (Physiol.)

10:15 **1106.** Amino-acid content of carbonic anhydrase. G. T. LEWIS AND L. LANGEN.* *Univ. of Miami School of Medicine.*

10:30 **1107.** Synthesis of the growth factor L - seryl - L - histidyl - L - leucyl - L - valyl - L - glutamic acid. R. B. MERRIFIELD AND D. W. WOOLLEY. *Rockefeller Inst.*

10:45 **1108.** Sequence studies on crystalline papain. J. R. KIMMEL* AND E. L. SMITH. *Univ. of Utah.*

11:00 **1109.** Action of arginase on peptides containing arginine. F. H. CARPENTER AND W. C. PIERCE.* *Univ. of California.*

11:15 **1110.** Reduction and hydrolysis of disulfide bonds in α-chymotrypsin. E. M. GROSS AND R. EGAN (intr. by W. H. SUMMERSON). *Army Chemical Center.*

11:30 **1111.** Reactions of the amino groups of chymotrypsinogen. P. E. WILCOX AND C. H. CHERVENKA (intr. by W. B. DANDLIKER). *Univ. of Washington.*

11:45 **1112.** Antigenic structure of ribonuclease. R. K. BROWN, H. VAN VUNAKIS AND L. LEVINE (intr. by M. C. PANGBORN). *New York State Dept. of Health, Albany.*

Pyrimidine, Nucleoside, and Nucleotide Metabolism

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM E

Chairman: G. H. Hitchings

9:00 **1113.** Isotopic and enzymatic studies of thymine metabolites. K. FINK, C. MCGAUGHEY,* R. B. HENDERSON* AND R. M. FINK. *VA Hosp., Long Beach and Univ. of California, Los Angeles.*

9:15 **1114.** Preparation and metabolic studies of radioactive 5-hydroxylmethyluracil. R. M. FINK, R. E. CLINE* AND K. FINK. *Univ. of California, Los Angeles, and VA Hosp., Long Beach.*

9:30 **1115.** Aminobutyric acid as a pyrimidine precursor in Neurospora. R. L. HERRMANN* AND J. L. FAIRLEY. *Michigan State Univ.*

9:45 **1116.** Biosynthesis of uracil nucleotides. E. S. CANELLAKIS (intr. by H. TARVER) *Yale Univ.*

10:00 **1117.** Synthesis and metabolic properties of dihydropyrimidine nucleosides. M. GREEN,* J. LICHTENSTEIN,* H. BARNER* AND S. S. COHEN. *Children's Hosp. of Philadelphia and Univ. of Pennsylvania School of Medicine.*

10:15 **1118.** Biosynthesis of nucleic acid guanine: Enzymic conversion of xanthosine-5′-phosphate (XMP) to guanosine-5′-phosphate (GMP). H. S. MOYED* AND B. MAGASANIK. *Harvard Med. School.*

10:30 **1119.** Amide-N of glutamine as source of guanine amino group. M. BENTLEY* AND R. ABRAMS. *Montefiore Hosp., Pittsburgh.*

10:45 **1120.** Guanosine triphosphate in the conversion of inosinic acid to adenylic acid. I. LIEBERMAN. *Washington Univ. School of Medicine.*

11:00 **1121.** Muscle purine riboside phosphorylase. H. L. A. TARR. *Pacific Fisheries Exptl. Station, Vancouver*

11:15 **1122.** Enzymes of nucleoside metabolism in Escherichia coli. A. L. KOCH (intr. by T. B. COOLIDGE). *Argonne Natl. Lab., Lemont, Ill., and Univ. of Chicago.*

11:30 **1123.** Nucleoside metabolism in human erythrocytes and components. F. J. LIONETTI,* W. L. MCLELLAN* AND B. S. WALKER. *Boston Univ. School of Med.*

11:45 **1124.** Bacterial riboside hydrolase. Y. TAKAGI (intr. by E. O. KEILES). *Natl. Insts. of Health.*

Inorganic Metabolism

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM 6

Chairman: W. D. Armstrong

9:00 **1125.** Effect of excess dietary methionine on iron metabolism in the rat. H. C. CHOITZ* AND C. P. BERG. *State Univ. of Iowa.*

9:15 **1126.** Mechanism of iron accumulation in liver slices. P. SALTMAN, H. FRISCH, R. FISKIN AND T. ALEX (intr. by A. WARE). *Univ. of Southern California, Los Angeles.*

9:30 **1127.** Distribution and retention of cadmium^{115} in the albino rat. C. F. DECKER* AND R. U. BYERRUM. *Michigan State Univ.*

9:45 **1128.** Tissue cadmium content following administration of low concentrations of cadmium in drinking water. L. E. DECKER (intr. by R. M. HERBST). *Michigan State Univ.*

10:00 **1129.** Interaction of yttrium compounds with serum proteins. B. ROSOFF,* R. LEWIN,* H. E. HART* AND K. G. STERN. *Montefiore Hosp. and Polytechnic Inst.*

10:15 **1130.** Cobaltoproteins of rat liver. J. M. REINER AND B. REINER.* *Simon Baruch Research Labs. and Health Research, Inc., Saratoga Springs, N. Y.* (Physiol.)

10:30 **1131.** Disposition of Ca^{45} injected intraperitoneally into suckling rats. FELIX BRONNER (intr. by R. M. ARCHIBALD). *Rockefeller Inst. for Med. Research.*

10:45 **1132.** Action of fluoride on bone salts. K. KUTNERIAN* AND A. C. KUYPER. *Wayne Univ. College of Medicine.*

11:00 **1133.** Studies in vitro of the mineralization process. BASIL STRATES* AND W. F. NEUMAN. *Atomic Energy Project, Univ. of Rochester School of Medicine and Dentistry.*

11:15 **1134.** Mechanism of calcification. A. E. SOBEL, M. BURGER,* J. SAMACHSON* AND N. SLOVIK.* *Jewish Hosp. of Brooklyn.*

Amino Acid Metabolism I

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM 7

Chairman: H. N. Christensen

9:00 **1135.** Digestion and absorption of acetyltryptophan. R. R. LANGNER (intr. by E. L. SMITH). *Univ. of Texas, Dental Branch, Houston.* (Physiol.)

9:15 **1136.** Amino acid absorption from the small intestine by continuous flow perfusion in situ. F. A. JACOBS, M. LUPER AND E. V. GILBERTSON (intr. by D. F. EVELETH). *Univ. of North Dakota School of Medicine.*

9:30 **1137.** Interrelations among pyridoxal, alkali metal ions and amino acids in active transport. T. R. RIGGS AND H. N. CHRISTENSEN. *Univ. of Michigan.*

9:45 **1138.** Distribution of N-acetyl-L-aspartic acid in brain. H. H. TALLAN (intr. by S. MOORE). *Rockefeller Inst. for Med. Research.*

10:00 **1139.** Microbiological studies on aspartic acid metabolism. H. E. SAUBERLICH AND G. GUROFF.* *Alabama Polytechnic Inst., Auburn.*

10:15 **1140.** Formation of hydroxyaspartic acid from dihydroxyfumaric acid and glutamic acid. H. J. SALLACH (intr. by R. W. MCGILVERY). *Univ. of Wisconsin Med. School.*

10:30 **1141.** Histidine biosynthesis: Imidazoleglycerol phosphate dehydrase. B. N. AMES (intr. by J. REID). *Natl. Insts. of Health.*

10:45 **1142.** Biosynthesis of ergothioneine. D. B. MELVILLE, S. EICH* AND M. L. LUDWIG.* *Cornell Univ. Med. College.*

11:00 **1143.** Metabolism of taurine in the growing chicken. L. J. MACHLIN (intr. by N. R. ELLIS). *Animal and Poultry Husbandry Research Branch, U. S. Dept. Agric., Beltsville.*

11:15 **1144.** Enzymatic formation of methylthiol esters from 3-phosphoglyceric acid. S. BLACK AND N. G. WRIGHT.* *Natl. Insts. of Health.*

11:30 **1145.** Cysteamine oxidase. R. SALVADOR* AND R. O. BRADY. *Natl. Inst. of Neurological Diseases and Blindness, and George Washington Univ. School of Medicine.*

11:45 **1146.** Purification of mammalian tyrosinase. F. C. BROWN (intr. by A. C. GRIFFIN). *Univ. of Texas.*

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

Thursday Afternoon, April 19, 1:15 p.m.

Oxidative Phosphorylation II; Glucagon and Epinephrine

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM B

Chairman: H. Lardy

1:15 **1147.** Effects of salicylic acid on aerobic respiration of rat brain preparations. R. PENNIALL (intr. by K. L. BURDON). *Baylor Univ. College of Medicine.* (Immunol.)

1:30 **1148.** Effect of glutamate on coupled phosphorylation in brain. E. C. LAYNE, JR.* AND S. P. BESSMAN. *Univ. of Maryland School of Medicine.*

1:45 **1149.** Oxidation of reduced pyridine nucleotides in brain. S. ENGLARD* AND H. J. STRECKER. *Albert Einstein College of Medicine, and New York State Psychiatric Inst.*

2:00 **1150.** Effects of adrenochrome on oxidative phosphorylation in liver mitochondria. J. H. PARK, B. P. MERIWETHER AND C. R. PARK (intr. by F. R. BLOOD). *Vanderbilt Univ. Med. School.* (Physiol.)

2:15 **1151.** Action of urethane on respiration, growth and oxidative phosphorylation in tetrahymena. J. J. EILER, J. Z. KREZANOSKI* AND K. LEE.* *Univ. of California School of Pharmacy.*

2:30 **1152.** Specificity of phosphate acceptor system during respiration of insect flight muscle mitochondria. B. SACKTOR AND D. G. COCHRAN (intr. by L. CHADWICK). *Army Chemical Ctr.* (Physiol.)

2:45 **1153.** Effect of glucagon on the renal excretion of electrolytes. A. STAUB, V. SPRINGS AND H. ELRICK (intr. by C. G. MACKENZIE). *VA Hosp., and Univ. of Colorado School of Medicine.*

3:00 **1154.** In vitro catabolism of protein hormones by liver: effect of other proteins on glycogenolytic action of glucagon. H. H. TOMIZAWA,* J. M. TYBERGHEIN,* Y. D. HALSEY* AND R. H. WILLIAMS. *Univ. of Washington, Seattle.* (Pathol.)

3:15 **1155.** Effect of epinephrine and glucagon on the reactivation of phosphorylase in liver homogenates. T. RALL,* E. W. SUTHERLAND AND J. BERTHET.* *Western Reserve Univ.*

3:30 **1156.** 3-4 Dihydroxyphenylethylamine as precursor of adrenal epinephrine in the intact rat. L. C. LEEPER* AND S. UDENFRIEND. *Natl. Insts. of Health.*

3:45 **1157.** Adverse effect of ascorbic acid on stability of epinephrine and norepinephrine in acid solution. M. J. OESTERLING (intr. by M. FAY). *Woman's Med. College of Pennsylvania.*

Steroid Hormones—Metabolism

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM C

Chairman: E. A. Doisy

1:15 **1158.** Mechanism of certain steroid oxidations effected by adrenal tissues and microorganisms. B. M. BLOOM,* M. HAYANO, A. SAITO,* D. STONE AND R. I. DORFMAN. *Worcester Fndn. for Exptl. Biology, Shrewsbury, and Chas. Pfizer and Co., Brooklyn.*

1:30 **1159.** Incorporation of molecular oxygen into 11 β-position of corticosteroids. M. L. SWEAT, R. A. ALDRICH,* C. H. DE BRUIN,* W. L. FOWLKS,* L. R. HEISELT* AND H. S. MASON. *Western Reserve Univ. School of Medicine, and Univ. of Oregon Med. School.*

1:45 **1160.** Steroid 11-β-hydroxylation by human testicular tumor. K. SAVARD, R. I. DORFMAN, B. BAGGETT* AND L. L. ENGEL. *Worcester Fndn. for Exptl. Biology, Massachusetts General Hosp., and Harvard Med. School.*

2:00 **1161.** Metabolism of 11-hydroxy-4-androstene-3,17-dione-4-C^{14}. H. L. BRADLOW, L. HELLMAN* AND T. F. GALLAGHER. *Sloan-Kettering Inst. for Cancer Research.*

2:15 **1162.** Steroid 21-hydroxylation by adrenal cell fractions. K. J. RYAN (intr. by M. SOODAK). *Harvard Univ., and Massachusetts General Hosp.*

2:30 **1163.** Enzymatic isomerization of β,γ-unsaturated 3-ketosteroids. P. TALALAY (intr. by E. S. GUZMAN BARRON). *Univ. of Chicago.*

2:45 **1164.** Human metabolism of 1-dehydro-17-hydroxycorticosteroids (Δ'-17-OHCS). W. R. SLAUNWHITE, JR. AND A. A. SANDBERG (intr. by C. CARRUTHERS). *Roswell Park Memorial Inst., Buffalo.*

3:00 **1165.** Comparison of metabolites of hydrocortisone in normal and rheumatoid synovial cavities. R. FAIRBANKS* AND H. WILSON. *New York Univ. College of Medicine.*

3:15 **1166.** Metabolism of hydrocortisone in isolated perfused dog kidney. F. M. GANIS

(intr. by J. J. MORTON). *Univ. of Rochester School of Medicine and Dentistry.* (Pathol.)

3:30 **1167.** Adrenocortical steroid C-20 reductase and Δ^4-3-ketoreductase of rat liver. R. O. RECKNAGEL (intr. by F. MAUTZ). *Western Reserve Univ.* (Physiol.)

3:45 **1168.** Enzymatic reduction of double bond of ring A of certain steroids. E. L. RONGONE,* B. C. BOCKLAGE,* D. R. STRENGTH* AND E. A. DOISY. *St. Louis Univ. School of Medicine.*

Amino Acid Metabolism II: Porphyrin Biosynthesis

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM D

Chairman: J. M. Orten

1:15 **1169.** Tyrosine biosynthesis in Escherichia coli: conversion of prephenic acid (PPA) to p-hydroxyphenyllactic acid (HPL). J. J. GHOSH (intr. by B. D. DAVIS). *New York Univ. College of Medicine.*

1:30 **1170.** Tyrosine metabolism in liver: requirement for catalase in oxidation of p-hydroxyphenylpyruvic acid. V. G. ZANNONI AND B. N. LA DU (intr. by B. B. BRODIE). *Natl. Insts. of Health.*

1:45 **1171.** Metabolism of DOPA. K. N. F. SHAW,* A. MCMILLAN* AND M. D. ARMSTRONG. *Univ. of Utah.*

2:00 **1172.** Metabolism of p-methoxyphenylalanine and p-methoxyphenylpyruvate. D. I. CRANDALL, J. PIRRUNG* AND L. GOTTESMAN.* *Univ. of Cincinnati College of Medicine, and Jewish Hosp., Cincinnati.*

2:15 **1173.** Quantitative studies on metabolism of tryptophan in patients receiving isoniazid therapy. J. M. PRICE, R. R. BROWN AND F. C. LARSON (intr. by J. A. MILLER). *Univ. of Wisconsin Med. School.*

2:30 **1174.** Metabolism of C^{14}-tryptophan in the rat. L. M. HENDERSON AND L. V. HANKES. *Univ. of Illinois, and Brookhaven Natl. Lab.*

2:45 **1175.** Metabolism of C^{14} carboxyl-labeled 3-hydroxyanthranilic acid in the rat. L. V. HANKES AND L. M. HENDERSON. *Brookhaven Natl. Lab., and Univ. of Illinois.*

3:00 **1176.** Quantitative studies on urinary excretion of anthranilic acid metabolites in rats and man. R. R. BROWN AND J. M. PRICE (intr. by E. C. MILLER). *Univ. of Wisconsin Med. School.*

3:15 **1177.** Metabolism of methyl histidine compounds in animals. R. W. COWGILL AND B. FREEBURG (intr. by H. O. L. FISCHER). *Univ. of California, Berkeley.*

3:30 **1178.** Porphyrin biosynthesis in nucleated avian erythrocyte. E. G. LARSEN* AND J. M. ORTEN. *Wayne Univ. College of Medicine.*

3:45 **1179.** Utilization of glycine, succinate and δ-aminolevulinic acid for heme synthesis. M. P. SCHULMAN AND D. A. RICHERT. *State Univ. of New York Med. College, Syracuse.*

4:00 **1180.** Erythrocyte protoporphyrin and coproporphyrin synthesis in vitro and inhibitory effects of certain benzimidazoles. L. D. ABBOTT, JR., M. J. DODSON* AND D. K. AUVIL. *Med. College of Virginia.*

DNA Metabolism and Bacteriophage

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM E

Chairman: R. D. Hotchkiss

1:15 **1181.** DNA synthesis in spleens of scorbutic guinea pigs. P. D. KLEIN AND R. W. SWICK (intr. by J. SCHUBERT). *Argonne Natl. Lab., Lemont, Ill.*

1:30 **1182.** New acid-stable component of DNA derived from formate-C^{14}. W. H. PRUSOFF AND L. G. LAJTHA (intr. by W. BERGMANN). *Yale Univ.*

1:45 **1183.** Thymine-5-bromouracil 'exchange' in desoxyribonucleic acid of Escherichia coli. S. ZAMENHOF, K. RICH* AND R. DE GIOVANNI.* *Columbia Univ.*

2:00 **1184.** Biosynthesis of deoxyribonucleic acid in slices of regenerating rat liver. L. I. HECHT* AND V. R. POTTER. *Univ. of Wisconsin.*

2:15 **1185.** Polydesoxyribonucleotide synthesis by enzymes from Escherichia coli. A. KORNBERG, I. R. LEHMAN* AND E. S. SIMMS. *Washington Univ. School of Medicine, St. Louis.*

2:30 **1186.** Structure of T2r+ bacteriophage protein. H. VAN VUNAKIS AND J. L. BARLOW (intr. by J. L. HENDRY). *New York State Dept. of Health.* (Immunol.)

2:45 **1187.** Release of bacteriophage DNA from its protein covering. L. M. KOZLOFF. *Univ. of Chicago.*

3:00 **1188.** Acid-soluble fraction of E. coli: comparison between normal and bacteriophage-infected cells. J. F. O'DONNELL AND R. P. MACKAL (intr. by J. J. CEITHAML). *Univ. of Chicago.*

3:15 **1189.** P^{32} incorporation into acid soluble nucleotides contained in virus-infected tissue. R. B. JOHNSON (intr. by W. W. ACKERMANN). *Univ. of Michigan School of Public Health.*

3:30 **1190.** Inhibition of pyruvate metabolism induced by virus infection. J. SPIZIZEN

(intr. by L. PILLEMER). *Western Reserve Univ. School of Med.*

3:45 **1191.** DNA produced by E. coli after T2 bacteriophage infection in presence of proflavin. L. ASTRACHAN (intr. by W. E. COHN). *Oak Ridge Natl. Lab.*

4:00 **1192.** RNA phosphorus turnover in T2r+-infected Escherichia coli. E. VOLKIN. *Oak Ridge Natl. Lab.*

Mucopolysaccharides

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM 6

Chairman: M. M. Rapport

1:15 **1193.** Sedimentation and diffusion studies on hyaluronic acid. R. BRUNISH, M. VANGEROV AND W. IRVINE (intr. by J. F. NYC). *Univ. of California School of Medicine, Los Angeles.*

1:30 **1194.** Properties of hyaluronic acid from human serum. H. F. DEUTSCH AND J. I. MORTON.* *Univ. of Wisconsin.*

1:45 **1195.** New procedure for preparing salts of heparin. R. L. JONES (intr. by D. W. MACCORQUODALE). *Abbott Labs.*

2:00 **1196.** Enzymatic degradation of heparin. A. N. PAYZA AND E. D. KORN (intr. by G. H. HOGEBOOM). *Natl. Insts. of Health.*

2:15 **1197.** Isolation of chondroitinsulfuric acid from normal human plasma. S. SCHILLER AND K. F. DEWEY.* *LaRabida Jackson Park Sanitarium, and Univ. of Chicago.*

2:30 **1198.** Sodium chondroitin sulfate-protein complex from cartilage. M. B. MATHEWS AND I. LOZAITYTE.* *Univ. of Chicago, and La Rabida Jackson Park Sanitarium.*

2:45 **1199.** Cortisone inhibition of chondroitin sulfate synthesis in guinea pigs fed large quantities of ascorbic acid. C. W. CHENG* AND R. E. SHANK. *Washington Univ., St. Louis.*

3:00 **1200.** Properties and gelation of collagen dissolved in neutral salt solutions. J. GROSS. *Massachusetts General Hosp., Harvard Med. School.* (Physiol.)

3:15 **1201.** Paper electrophoretic study of ground substance and scleroprotein of connective tissue. K. T. KAO, N. L. NOBLE AND R. J. BOUCEK (intr. by S. W. GRAY). *Univ. of Miami School of Medicine.* (Physiol.)

3:30 **1202.** Substances containing sialic acid. R. HEIMER AND K. MEYER. *Columbia Univ., College of Physicians and Surgeons.*

3:45 **1203.** Mucopolysaccharide formation in scorbutic repair tissue. W. VAN B. ROBERTSON, J. THURLOW* AND H. HINDS.* *Univ. of Vermont College of Medicine.*

4:00 **1204.** Investigations on inhibition of L. bifidus enzyme. C. S. ROSE AND P. GYÖRGY. *Univ. of Pennsylvania.*

Adaptive Enzymes: Coenzymes

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM 7

Chairman: S. P. Colowick

1:15 **1205.** Adaptation of aerobacter to rhamnose. R. L. GARNER AND G. I. FINK.* *Univ. of Michigan Med. School.*

1:30 **1206.** Induced formation of SIII and SVIII pneumococcal polysaccharide depolymerases by B. palustris. T. SALZMAN, F. DELAFIELD AND A. M. TORRIANI (intr. by A. M. PAPPENHEIMER, JR.) *New York Univ. College of Medicine.*

1:45 **1207.** Formation of succinic dehydrogenase and cytochrome oxidase during aeration of anaerobically grown yeast. C. RAUT AND J. BURMAN (intr. by P. G. STANSLY). *Detroit Inst. of Cancer Research and Wayne Univ. College of Medicine.*

2:00 **1208.** Gain of two enzymes concerned with rhamnose utilization by single mutational event. E. ENGLESBERG (intr. by K. F. MEYER). *Biological Lab., Long Island Biological Assoc.* (Immunol.)

2:15 **1209.** Streptomycin and adaptive enzyme formation. W. J. POLGLASE (intr. by E. C. BLACK). *Univ. of British Columbia, Vancouver.* (Physiol.)

2:30 **1210.** Factors affecting diphosphopyridine nucleotide concentrations of liver. C. C. CHANG,* H. M. RAWNSLEY,* F. V. FLYNN* AND J. G. REINHOLD. *Univ. of Pennsylvania.*

2:45 **1211.** Fluorimetry of oxidized and reduced pyridine nucleotides and microanalytical applications. O. H. LOWRY, N. R. ROBERTS,* J. I. KAPPHAHN* AND C. LEWIS.* *Washington Univ. School of Medicine, St. Louis.*

3:00 **1212.** Incorporation of labeled glucose into DPN of mouse liver. L. SHUSTER* AND A. GOLDIN. *Natl. Insts. of Health.* (Physiol.)

3:15 **1213.** Spectrophotometric determination of FAD. A. DEUTSCH AND R. LAZZARINI (intr. by W. DRELL). *Calif. Fndn. for Biochemical Research, Los Angeles.*

3:30 **1214.** Spectra of intermediate oxidation stages of flavins. H. BEINERT, J. G. HAUGE* AND E. PAGE.* *Univ. of Wisconsin.*

8:45 **1215.** Biosynthesis and microestimation of 2,3-diphosphoglycerate (DPG). J. C. TOWNE,* V. W. RODWELL* AND S. GRISOLIA. *Univ. of Kansas.*

4:00 **1216.** Mechanism of enzymatic synthesis of pantothenate from beta-alanine and pantoate. W. K. MAAS. *New York Univ. College of Medicine.*

Biochemistry Society Business Meeting

THURSDAY, 4:30 P.M.—CONVENTION HALL, ROOM B

Inter-Society Symposium: Nutritional and Toxicological Studies on Irradiated Foods

THURSDAY, 1:15 P.M.—CONVENTION HALL, ARENA STAGE

Program on page 641

Friday Morning, April 20, 9:00 a.m.

Krebs Cycle and Decarboxylations

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM B

Chairman: E. Hunter

9:00 **1217.** Isocitric dehydrogenases from heart muscle. G. SIEBERT AND J. DUBUC (intr. by G. W. E. PLAUT). *New York Univ. College of Medicine.*

9:15 **1218.** Mechanism of action of aconitase from Aspergillus terreus. R. BENTLEY AND C. P. THIESSEN.* *Grad. School of Public Health, Univ. of Pittsburgh.*

9:30 **1219.** Citrate-condensing enzyme of Mycobacterium tuberculosis. D. S. GOLDMAN. *VA Hosp., Madison.*

9:45 **1220.** Intermediate from succinate 2,3-C-14. L. M. MARSHALL AND C. VAUGHN.* *Howard Univ. College of Medicine.*

10:00 **1221.** Oxidative decarboxylation of malate by Ascaris lumbricoides. H. J. SAZ (intr. by M. TAGER). *Louisiana State Univ. School of Medicine.* (Immunol.)

10:15 **1222.** Partial purification of two malate oxidizing enzymes in M. lysodeikticus. D. V. COHN (intr. by L. PETERS). *VA Hosp., Kansas City, and Univ. of Kansas Med. Ctr.* (Pharmacol.)

10:30 **1223.** Enzymatic decarboxylation of oxalic acid. W. B. JAKOBY (intr. by I. ZELITCH). *Natl. Insts. of Health.*

10:45 **1224.** Pyruvic dehydrogenase system of Clostridium pasteurianum. A. L. SHUG* AND P. W. WILSON. *Univ. of Wisconsin.*

11:00 **1225.** Multiple function of lactic oxidative decarboxylase from Mycobacterium phlei. W. B. SUTTON (intr. by G. H. A. CLOWES). *Eli Lilly and Co.*

11:15 **1226.** Enzymatic components of tartrate oxidizing system of beef heart mitochondria. E. KUN AND D. D. DAVIES.* *Univ. of Wisconsin.*

11:30 **1227.** Formation of oxalacetate from d-tartrate. L. O. KRAMPITZ AND F. LYNEN.* *Max Planck Institut, München, Germany.*

Cytochromes and Succinic Dehydrogenase

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM C

Chairman: E. G. Ball

9:00 **1228.** Isolation of lactoperoxidase. M. MORRISON AND H. B. HAMILTON (intr. by W. R. BLOOR). *Univ. of Rochester School of Medicine and Dentistry.*

9:15 **1229.** Mechanisms of enzyme-catalyzed oxygen transfer. H. S. MASON AND I. ONOPRIENKO.* *Univ. of Oregon Med. School.*

9:30 **1230.** Hypothetical structure of cytochrome oxidase. W. W. WAINIO. *Rutgers Univ.*

9:45 **1231.** Electron transferring particle. J. L. GLENN AND F. L. CRANE (intr. by C. A. ELVEHJEM). *Univ. of Wisconsin.*

10:00 **1232.** Soluble DPNH and succinic dehydrogenase from electron transfer particle. R. E. BASFORD AND B. DE BERNARD (intr. by J. W. WILLIAMS). *Univ. of Wisconsin.*

10:15 **1233.** Structure of flavin peptides from succinic dehydrogenase. E. B. KEARNEY, V. MASSEY* AND T. P. SINGER. *E. B. Ford Inst. for Med. Research.*

10:30 **1234.** Fumaric hydrogenase activity of succinic dehydrogenase. V. MASSEY,* T. P. SINGER AND E. B. KEARNEY. *E. B. Ford Inst. for Med. Research.*

10:45 **1235.** Kinetic and spectral studies of cytochromes in DPNH oxidase. R. ESTABROOK* AND B. MACKLER. *Univ. of Pennsylvania, and Univ. of Wisconsin.*

11:00 **1236.** Cytochrome b_2 and b_5 systems. B. CHANCE, M. KLINGENBERG* AND E. BOERI.* *Univ. of Pennsylvania, and Univ. of Ferrara.*

11:15 **1237.** Succinic dehydrogenase system of Bacterium tularense. C. L. WADKINS AND R. C. MILLS (intr. by C. A. MILLS). *Univ. of Kansas.*

11:30 **1238.** Solubilization and cytochrome(s) of the particulates from Acetobacter suboxydans. T. E. KING AND V. H. CHELDELIN. *Oregon State College.*

11:45 **1239.** Cytochromes in denitrifying bacteria. L. P. VERNON. *Brigham Young Univ.*

Amino Acid Metabolism III

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM D

Chairman: C. G. Mackenzie

9:00 **1240.** Metabolism of N^{15}-labeled glycine during administration of growth hormone. O. H. GAEBLER AND R. LINER.* *E. B. Ford Inst. for Med. Research.*

9:15 **1241.** Conversion of glycine to serine in extracts of acetone-dried luminous bacteria.

J. W. DAVIS,* J. V. PASSONNEAU* AND J. R. TOTTER. *Oak Ridge Natl. Lab.*

9:30 **1242.** Enzymatic conversion of serine to glycine. F. M. HUENNEKENS, Y. HATEFI,* L. KAY* AND G. DODSON.* *Univ. of Washington, Seattle.*

9:45 **1243.** Incorporation of serine-3-C^{14} into methionine. V. M. DOCTOR,* J. B. TRUNNELL* AND J. AWAPARA. *Univ. of Texas.*

10:00 **1244.** Mechanism of formaldehyde incorporation into serine. R. L. KISLIUK (intr. by W. SAKAMI). *Western Reserve Univ. Med. School.*

10:15 **1245.** Methionine activating enzyme. G. L. CANTONI AND J. DURELL.* *Natl. Insts. of Health.*

10:30 **1246.** Methionine precursors in Neurospora. R. A. MCRORIE AND G. L. CARLSON (intr. by G. H. SATTERFIELD). *Univ. of Georgia.*

10:45 **1247.** Transmethylation studies involving homocysteine as methyl acceptor. N. H. SLOANE, E. M. BOGGIANO,* B. COULOMB* AND B. L. HUTCHINGS. *American Cyanamid Co., Pearl River.*

11:00 **1248.** Biological methylation of anserine. I. R. MCMANUS (intr. by W. A. KREHL). *VA Hosp., West Haven, and Yale Univ.*

11:15 **1249.** Utilization of methionine for synthesis of choline in rats and tumor-bearing mice studied in vivo or in vitro. J. A. STEKOL, S. WEISS,* E. I. ANDERSON* AND A. WATJEN.* *Lankenau Hosp. Research Inst., and Inst. for Cancer Research, Philadelphia.*

11:30 **1250.** Methyl synthesis in the rat from formate intramolecularly labeled with C^{14} and deuterium. J. R. RACHELE AND H. AEBI.* *Cornell Univ. Med. College.*

11:45 **1251.** Tumor-host relationships in formate metabolism: oxidation of formate by mouse liver homogenates. A. M. STEIN* AND J. W. MEHL. *Univ. of Southern California, Los Angeles.*

RNA Metabolism

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM E

Chairman: G. B. Brown

9:00 **1252.** Ribonucleic acid and protein balance in phosphate- and sulfate-starved bakers' yeast. G. SCHMIDT, KRIKOR SERAIDARIAN* AND S. J. THANNHAUSER. *Tufts Univ. Med. School.*

9:15 **1253.** Formation of ribonucleic acid by pigeon liver homogenates. E. GOLDWASSER (intr. by A. DORFMAN). *Univ. of Chicago.*

9:30 **1254.** Turnover rate of RNA in rat liver. R. W. SWICK AND A. L. KOCH (intr. by H. LISCO). *Argonne Natl. Lab., Lemont, Ill.* (Pathol.)

9:45 **1255.** Distribution of polynucleotide phosphorylase. D. O. BRUMMOND* AND S. OCHOA. *New York Univ. College of Medicine.*

10:00 **1256.** Chemical and enzymatic studies of polynucleotides synthesized by polynucleotide phosphorylase. L. A. HEPPEL, J. D. SMITH,* P. J. ORTIZ* AND S. OCHOA. *Natl. Insts. of Health, and New York Univ. College of Medicine.*

10:15 **1257.** Ultraviolet spectra of enzymatically synthesized polynucleotides. R. C. WARNER. *New York Univ. College of Medicine.*

10:30 **1258.** Polyribonucleotide synthesis with enzyme from Escherichia coli. U. Z. LITTAUER (intr. by M. COHN). *Washington Univ. School of Medicine, St. Louis.*

10:45 **1259.** Nucleotide polymerase activity in cell-free extracts of Micrococcus lysodeikticus. R. F. BEERS, JR. (intr. by F. O. SCHMITT). *Massachusetts Inst. of Technology.* (Physiol.)

11:00 **1260.** Incorporation of uracil-2-C^{14} into nucleic acids of regenerating liver. A. CANTAROW, T. L. WILLIAMS* AND K. E. PASCHKIS. *Jefferson Med. College.* (Physiol.)

11:15 **1261.** Incorporation of 8-azaguanine-4-C^{14} into bacterial nucleic acids. H. GEORGE MANDEL. *George Washington Univ. School of Medicine.*

11:30 **1262.** Growth stimulation of Streptococcus faecalis by adenine derivatives. D. J. HUTCHISON (intr. by A. BENDICH). *Sloan-Kettering Inst. for Cancer Research.*

11:45 **1263.** Utilization of purine moiety of ribosides and purines. M. E. BALIS AND D. J. HUTCHISON.* *Sloan-Kettering Inst. for Cancer Research.*

Estrogens—Chemistry and Metabolism

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM 6

Chairman: W. W. Westerfeld

9:00 **1264.** Estrogenic activity and metabolism of diethylstilbestrol diphosphate. E. C. ADAMS, JR.,* H. M. FREE* AND A. H. FREE. *Miles-Ames Research Lab., Elkhart, Ind.*

9:15 **1265.** Partial degradation of benzene ring of estrone. H. WERBIN (intr. by E. M. K. GEILING). *Argonne Cancer Research Hosp., and Univ. of Chicago.*

9:30 **1266.** Metabolism of estrone-16, estradiol-3,16α and estradiol-3,16β in man. B. F. STIMMEL. *Rees-Stealy Clinic Research Fndn., San Diego.*

9:45 **1267.** Conversion of estradiol-17β-16-C^{14} to radioactive 16-ketoestradiol-17β in man. M. LEVITZ, J. R. SPITZER AND G. H. TWOMBLY (intr. by I. GREENWALD). *New York Univ. College of Medicine.*

10:00 **1268.** Human placental estradiol-17β dehydrogenase. L. LANGER* AND L. L. ENGEL. *Harvard Univ., and Massachusetts General Hosp.*

10:15 **1269.** Effect of estradiol on metabolism of serine-3-C^{14} in surviving uterine segments. A. HERRANEN* AND G. C. MUELLER. *Univ. of Wisconsin.*

10:30 **1270.** Metabolism of estradiol-16-C^{14} by fortified enzyme systems. G. RUMNEY (intr. by H. A. WAISMAN). *Univ. of Wisconsin.*

10:45 **1271.** Distribution of infused estrogens in human plasma. H. N. ANTONIADES, F. INGERSOLL, J. W. MCARTHUR AND R. B. PENNELL (intr. by F. R. N. GURD). *Protein Fndn. Labs., and Vincent Memorial Hosp., Boston.*

11:00 **1272.** Effects of treating estrogens with zinc and hydrochloric acid. L. RECKERS* AND P. A. KATZMAN. *St. Louis Univ. School of Medicine.*

Nutrition

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM 21

Chairman: H. H. Williams

9:00 **1273.** A strain-dependent influence of glycine on salicylate-induced adrenal ascorbic acid depletion in rats. C. H. EADES, JR. AND J. S. KING, JR. (intr. by H. P. SARETT). *Univ. of Tennessee.*

9:15 **1274.** Metabolic fate of some flavanones. A. N. BOOTH,* F. T. JONES* AND F. DEEDS. *Western Utilization Research Branch, U.S. Dept. Agric., Albany, Calif.*

9:30 **1275.** Isolation and physiological action of (+) carnitine. S. FRIEDMAN, A. B. GALUN AND G. FRAENKEL (intr. by W. C. ROSE). *Univ. of Illinois.*

9:45 **1276.** Anticarnitine effect of γ-butyrobetaine on development of chick embryo. T. ITO* AND G. FRAENKEL. *Univ. of Illinois.* (Nutrition.)

10:00 **1277.** Phosphorylation efficiency in rabbits fed a tocopherol-deficient diet. P. MCCAY* AND R. CAPUTTO. *Oklahoma Med. Research Fndn., Oklahoma City.*

10:15 **1278.** Dinitrophenol and site of respiratory lesion in dietary necrotic liver degeneration. S. S. CHERNICK AND K. SCHWARZ.* *Natl. Insts. of Health.*

10:30 **1279.** Function of vitamin A. M. D. LANE,* G. WOLF* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

10:45 **1280.** Vitamin D and citrate oxidation. H. F. DELUCA,* F. G. GRAN* AND H. STEENBOCK. *Univ. of Wisconsin.*

11:00 **1281.** Regeneration of flavin enzymes during recovery from riboflavin deficiency. H. B. BURCH AND A. M. COMBS (intr. by M. E. FRIEDKIN). *Washington Univ. School of Medicine, St. Louis.*

11:15 **1282.** Effect of thiamin deficiency on mammalian erythrocyte metabolism. M. BRIN, S. S. SHOHET* AND C. S. DAVIDSON. *Boston City Hosp., and Harvard Med. School.*

11:30 **1283.** Effect of diet and adrenalectomy on proteinuria in experimental nephrosis. J. B. MARSH AND D. L. DRABKIN. *Grad. School of Medicine, Univ. of Pennsylvania.*

11:45 **1284.** Metabolic significance of blood amino nitrogen levels. A. A. ALBANESE, L. A. ORTO* AND D. N. ZAVATTARO.* *St. Luke's Hosp., New York.*

Fatty Acids and Glycerides

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM 7

Chairman: K. Hofmann

9:00 **1285.** Structural studies on lactobacillic acid and other long-chain fatty acids containing cyclopropane ring. G. J. MARCO* AND K. HOFMANN. *Univ. of Pittsburgh School of Medicine.*

9:15 **1286.** Fatty acid synthesis by soluble enzyme system. S. J. WAKIL,* J. W. PORTER AND A. TIETZ.* *Univ. of Wisconsin.*

9:30 **1287.** Enzymatic mechanisms in synthesis of fatty acids. D. M. GIBSON AND M. I. JACOB (intr. by J. D. FERRY). *Univ. of Wisconsin.*

9:45 **1288.** Distribution and biosynthesis of individual fatty acids in tissues of intact rats given C^{14}-acetate. J. G. CONIGLIO (intr. by C. S. ROBINSON). *Vanderbilt Univ. School of Medicine.*

10:00 **1289.** Lipid synthesis in cell-free yeast extracts. L. M. CORWIN, L. J. SCHROEDER AND W. G. MCCULLOUGH (intr. by A. J. VORWALD). *Wayne Univ. College of Medicine.* (Pathol.)

10:15 **1290.** Anaerobic [illegible]-ogenesis in fetal liver slices. C. A. VILLEE, D. D. HAGERMAN,* R. KIMMELSTIEL,* J. M. LORING* AND F. M. WELLINGTON.* *Harvard Med. School.*

10:30 **1291.** Carbon sources for ergosterol and fatty acid synthesis in Neurospora crassa. DAVID STONE, O. HECHTER AND A. NUSSBAUM.* *Worcester Fndn. for Exptl. Biology.* (Physiol.)

10:45 **1292.** Inhibition of acetate metabolism by short-chain fatty acids in rat liver slices. J. M. FELTS,* E. J. MASORO, S. S. PANAGOS AND D. RAPPORT. *Tufts Univ. School of Medicine.* (Physiol.)

11:00 **1293.** Metabolic pathway of linolenic acid. J. F. MEAD, G. STEINBERG, W. H. SLATON, JR.* AND D. R. HOWTON.* *Atomic Energy Project, Univ. of California School of Medicine, Los Angeles.*

11:15 **1294.** Intestinal absorption of unhydrolyzed tripalmitin. R. REISER AND J. W. DIECKERT.* *Texas Agric. Exp. Station, College Station.*

11:30 **1295.** Lipide choline and fatty acid oxidation in rat liver preparations. CAMILLO ARTOM. *Bowman Gray School of Medicine.*

11:45 **1296.** Pancreatic lipase, new tool for determining structure of triglycerides. F. H. MATTSON. *Procter and Gamble Co.* (Nutr.)

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 8 of Convention Hall, where owners may claim them on proper identification.

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lobby of Convention Hall to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Friday Afternoon, April 20, 12:30 p.m.

Amino Acid Metabolism IV

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM B

Chairman: A. Meister

12:30 **1297.** γ-Glutamyl phosphate. L. LEVINTOW AND A. MEISTER. *Natl. Insts. of Health, and Tufts Univ. School of Medicine.*

12:45 **1298.** Stimulation of carbamyl phosphate synthesis by factor isolated from liver. L. M. HALL AND P. P. COHEN. *Univ. of Wisconsin.*

1:00 **1299.** Experiments with C^{14}-labeled carbamyl phosphate. R. CROKAERT,* M. E. JONES AND F. LIPMANN. *Massachusetts General Hosp. and Harvard Med. School.*

1:15 **1300.** Evidence for enzyme-amidine intermediate in transamidation reactions. J. B. WALKER. *Univ. of Wisconsin.*

1:30 **1301.** Enzymatic and nonenzymatic conversion of hydroxyproline to pyrrole-α-carboxylic acid. A. N. RADHAKRISHNAN* AND A. MEISTER. *Natl. Insts. of Health, and Tufts Univ. School of Medicine.*

1:45 **1302.** Metabolism of α-C^{14}-DL-hydroxyproline in intact rat: radioactivity in amino acids. W. W. HECK, J. C. LEAK, G. WOLF AND C. R. A. BERGER (intr. by H. H. MITCHELL). *Univ. of Illinois.*

2:00 **1303.** Isotope tracer studies on mechanism of lysine biosynthesis in Escherichia coli. M. STRASSMAN,* A. J. THOMAS* AND S. WEINHOUSE. *Lankenau Hosp. Research Inst., and Inst. for Cancer Research, Philadelphia.*

2:15 **1304.** Biosynthesis of diaminopimelic acid. C. GILVARG. *New York Univ. College of Medicine.*

2:30 **1305.** L-threonine, an obligatory precursor of L-isoleucine in E. coli. H. E. UMBARGER. *Harvard Med. School.*

2:45 **1306.** Inhibition of valine and isoleucine synthesis in yeast by thioctic acid analogues. H. P. BROQUIST AND A. V. STIFFEY. *American Cyanamid Co., Pearl River.*

3:00 **1307.** Valine metabolism and penicillin biosynthesis. C. M. STEVENS, C. W. DELONG,* P. VOHRA* AND E. INAMINE.* *State College of Washington.*

3:15 **1308.** Biochemical response to trauma: glutamine, glutamic acid, ammonia in the brain. I. GRAY, J. M. JOHNSTON AND C. W. SPEARING (intr. by E. R. B. SMITH). *Walter Reed Inst. of Research.*

Carbohydrate Chemistry and Metabolism

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM C

Chairman: D. Stetten, Jr.

12:30 **1309.** Method for determination of acid aminopolysaccharides in human urine. C. RICH AND N. DI FERRANTE (intr. by D. D. DZIEWIATKOWSKI). *Rockefeller Inst. for Med. Research.*

12:45 **1310.** Color reaction of N-acetylamino sugar derivatives with p-dimethyl-aminobenzaldehyde. R. W. JEANLOZ AND M. TREMÈGE.* *Massachusetts General Hosp., and Harvard Med. School.*

1:00 **1311.** Trehalose in insects. G. R. WYATT AND G. F. KALF (intr. by J. S. FRUTON). *Yale Univ. School of Medicine.*

1:15 **1312.** Iron-binding activity of the sugar-amino acids. J. B. NEILANDS AND P. M. TOWNSLEY.* *Univ. of California, Berkeley.*

1:30 **1313.** Anthrone stability and determination of the heptuloses. L. P. ZILL (intr. by S. F. CARSON). *Oak Ridge Natl. Lab.*

1:45 **1314.** Relation of molecular weight to metabolic activity of glycogen in liver and muscle. M. R. STETTEN AND D. STETTEN, JR. *Natl. Insts. of Health.*

2:00 **1315.** Preparation and metabolic fate of crystalline glucosamine-phosphate. S. ROSEMAN. *Univ. of Michigan.*

2:15 **1316.** Formation of L-arabinose phosphate by extracts from Propionibacterium pentosaceum. W. A. VOLK (intr. by W. PARKER ANSLOW, JR.). *Univ. of Virginia School of Medicine.*

2:30 **1317.** Synthesis and metabolism of enantiomorphic forms of glycerol-1-C^{14}. M. L. KARNOVSKY, G. HAUSER* AND D. ELWYN.* *Harvard Med. School.*

2:45 **1318.** Formation of serine from glycerol-1,3-C^{14} by the rat. R. E. KOEPPE, M. L. MINTHORN AND R. J. HILL (intr. by J. L. WOOD). *Univ. of Tennessee.*

Thyroxine and Thyrotropic Hormones

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM D

Chairman: Eunice V. Flock

12:30 **1319.** Effect of sialoadenectomy on growth. A. W. WASE AND Y. S. L. FENG (intr. by M. J. BOYD). *Hahnemann Med. College.*

12:45 **1320.** Use of ioresin column for determination of PBI-131 conversion ratios. T. N. LAHR AND D. L. TABERN (intr. by F. McINTIRE). *Abbott Labs.*

1:00 **1321.** Triiodothyronine derivatives in urine and bile. E. V. FLOCK, J. H. GRINDLAY* AND J. L. BOLLMAN.* *Mayo Fndn.*

1:15 **1322.** Diiodotyrosine and triiodothyronine deiodinase systems in liver. W. R. RUEGAMER AND R. B. CHODOS.* *VA Hosp. and State Univ. of New York, Syracuse.*

1:30 **1323.** Normal and thyrotoxic rat liver mitochondria. G. F. MALEY (intr. by W. H. PETERSON). *Univ. of Wisconsin.*

1:45 **1324.** Inhibition of malic dehydrogenase by thyroxine. J. WOLFF AND E. C. WOLFF (intr. by F. FRIEDBERG). *Natl. Insts. of Health.*

2:00 **1325.** Preparation of high potency concentrates of thyrotropic hormone. J. G. PIERCE AND J. F. NYC. *Univ. of California Med. Ctr., Los Angeles.*

2:15 **1326.** Purification of thyrotrophic hormone. P. G. CONDLIFFE* AND R. W. BATES. *Natl. Insts. of Health.*

Citrovorum Factor and Folacin

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM E

Chairman: E. L. R. Stokstad

12:30 **1327.** Heat labile form of citrovorum factor in human urine. A. M. ALBRECHT (intr. by E. L. R. STOKSTAD). *American Cyanamid Co., Pearl River.*

12:45 **1328.** 'Labile citrovorum factor' in human urine. M. SILVERMAN, F. G. EBAUGH* AND R. C. GARDINER.* *Natl. Insts. of Health.*

1:00 **1329.** Enzymatic conversion of pteroylglutamic acid to the citrovorum factor by partially purified extracts of Lactobacillus casei. C. R. HEISLER* AND B. S. SCHWEIGERT. *American Meat Inst. Fndn., and Univ. of Chicago.*

1:15 **1330.** Conversion of β-carbon of serine to N^{10}-formyltetrahydrofolic acid. L. JAENICKE (intr. by S. LEVEY). *Western Reserve Univ.*

1:30 **1331.** Enzymatic synthesis of complex pteridine coenzymes. B. E. WRIGHT (intr. by W. W. KIELLEY). *Natl. Insts. of Health.*

1:45 **1332.** Transfer of formyl group of formamidinoglutaric acid (FAG) to folic acid. A. MILLER (intr. by H. T. CLARKE). *Columbia Univ., and New York State Psychiatric Inst.*

2:00 **1333.** Labile reduced derivatives of pteroylglutamic acid. S. F. ZAKRZEWSKI* AND C. A. NICHOL. *Yale Univ.*

2:15 **1334.** Enzymatic inactivation of folic acid. S. FUTTERMAN (intr. by J. C. KERESZTESY). *Natl. Insts. of Health.*

Physicochemical Methods

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM F

Chairman: S. Moore

12:30 **1335.** Improved method for quantitative determination of phosphorus. R. L. DRYER,* A. R. TAMMES* AND J. I. ROUTH. *State Univ. of Iowa College of Medicine.*

12:45 **1336.** Measurement of C^{14} of plasma glucose by a simplified liquid scintillation method. C. BJERKNES,* ROBERT STEELE AND WILLIAM BERNSTEIN.* *Brookhaven Natl. Lab.*

1:00 **1337.** Biological applications of liquid scintillation counter. T. T. TRUJILLO (intr. by W. H. LANGHAM). *Los Alamos Scientific Lab.*

1:15 **1338.** Separation of sulfhydryl derivatives on paper. C. A. PRICE (intr. by B. S. STREHLER). *Purdue Univ.*

1:30 **1339.** Automatic recording apparatus for use in chromatography of amino acids. D. H. SPACKMAN,* W. H. STEIN AND S. MOORE. *Rockefeller Inst. for Med. Research.*

1:45 **1340.** Salt-free chromatography of proteins on cellulose ion exchangers using carbon dioxide solutions. M. A. MITZ AND S. S. YANARI (intr. by K. C. ROBBINS). *Armour and Co.* (Immunol.)

2:00 **1341.** Device for electroseparation of proteins. N. G. ANDERSON. *Oak Ridge Natl. Lab.* (Physiol.)

2:15 **1342.** Simultaneous determination of sedimentation and diffusion coefficients through biological assay. D. A. YPHANTIS* AND D. F. WAUGH (intr. by J. Y. LETTVIN). *Massachusetts Inst. of Technology.* (Physiol.)

2:30 **1343.** Three phase counter-current distribution. H. L. MELTZER (intr. by E. T. ENGLE). *New York State Psychiatric Inst., and Columbia Univ., College of Physicians and Surgeons.* (Physiol.)

Chemistry of Lipoproteins

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM 21

Chairman: J. L. Oncley

12:30 **1344.** Distribution of some constituents of hens' egg yolk between its soluble and

its particulate fraction. M. J. BESSMAN,* G. SCHMIDT, M. D. HICKEY* AND S. J. THANNHAUSER. *Tufts Univ. Med. School.*

12:45 **1345.** Isolation of cellular lipoproteins. L. E. THOMAS, N. C. BRUEMMER,* J. T. SMITH* AND A. J. FUNCKES.* *Univ. of Missouri School of Medicine.*

1:00 **1346.** Reaction of human serum β-lipoglobulin with macromolecular polysulfate esters. P. BERNFELD AND J. S. NISSELBAUM.* *Tufts Univ. Med. School.*

1:15 **1347.** Fat emulsions: effects on serum proteins. R. R. BENERITE, K. FORMUSA, W. S. SINGLETON AND J. L. WHITE (intr. by A. M. ALTSCHUL). *Southern Regional Research Lab., U. S. Dept. Agric., New Orleans.*

1:30 **1348.** Vitamin A, carotenoids and plasma lipoproteins. N. I. KRINSKY, D. G. CORNWELL AND J. L. ONCLEY (intr. by D. R. GRIFFIN). *Harvard Univ., and Harvard Med. School.* (Physiol.)

Steroid Hormones—Chemistry

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM 7

Chairman: T. F. Gallagher

12:30 **1349.** Estimation of alpha-ketolic steroids by reduction of ferricyanide. N. R. STEPHENSON (intr. by L. I. PUGSLEY). *Dept. Natl. Health and Welfare, Ottawa.*

12:45 **1350.** Reaction of blue tetrazolium with C21 and C19 steroids. A. J. IZZO, R. B. BURTON AND E. H. KEUTMANN (intr. by F. HAVEN). *Univ. of Rochester School of Medicine and Dentistry.*

1:00 **1351.** Micromethod for determination of acetylable steroids from blood and urine. D. L. BERLINER (intr. by A. ZAFFARONI). *Univ. of Utah College of Medicine.*

1:15 **1352.** Progesterone side-chain oxidation. W. S. LYNN, JR. (intr. by H. KAMIN). *Duke Univ. School of Medicine.*

1:30 **1353.** Synthesis of 19-hydroxyandrostenedione. M. R. EHRENSTEIN AND M. DÜNNENBERGER.* *Univ. of Pennsylvania.*

1:45 **1354.** Effect of interference of methyl groups on conformation of steroid side chain. J. W. CORCORAN* AND H. HIRSCHMANN. *Western Reserve Univ.*

2:00 **1355.** Isolation of androsterone glucuronoside. M. L. LEWBART* AND J. J. SCHNEIDER. *Jefferson Med. College.*

2:15 **1356.** Sources of placental steroids. H. SALHANICK, J. E. JONES AND D. BERLINER (intr. by W. Allen). *Univ. of Utah.* (Physiol.)

2:30 **1357.** Binding of corticosteroids by plasma proteins. W. H. DAUGHADAY AND C. HARTNETT (intr. by T. E. WEICHSELBAUM). *Washington Univ. School of Medicine.*

2:45 **1358.** Spectrophotometric demonstration of interaction between proteins and Δ^4-3-ketosteroid hormones. U. WESTPHAL. *Army Med. Research Lab., Fort Knox.*

3:00 **1359.** Isolation and characterization of two new urinary steroids. D. K. FUKUSHIMA, E. D. MEYER,* E. ASHWORTH* AND T. F. GALLAGHER. *Sloan-Kettering Inst. for Cancer Research.*

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

PAPERS READ BY TITLE

1360. Conversion of hydroxyproline to glutamate in bacterial extracts. ELIJAH ADAMS. *New York Univ. College of Medicine.*

1361. Fractionation of the lipid stain, Sudan Black B. E. W. BERMES, JR.* AND H. J. MCDONALD. *Grad. School and Stritch School of Medicine.*

1362. Fractionation of ribonucleic acids from yeast. F. F. DAVIS* AND F. W. ALLEN. *Univ. of California School of Medicine, Berkeley.*

1363. Direct influence of hypoxia on iron absorption. J. H. DAVIS AND C. A. JOHNSON (intr. by O. BERGEIM). *Univ. of Illinois College of Medicine.*

1364. Enzyme inhibition by fluorocompounds. A. S. FAIRHURST,* R. E. SMITH,* AND E. M. GAL. *Univ. of California School of Medicine, Los Angeles.*

1365. Possible role of alloxan-adducts in prediabetic states. C. FUNK, P. TOMASHEFSKY,* T. T. IRIYE* AND R. ABOODY.* *Funk Fndn., New York City.*

1366. Responses of the respiratory system of Azotobacter in the presence of sodium azide. C. R. GOUCHER* AND W. KOCHOLATY. *Army Med. Research Lab., Fort Knox.*

1367. Effect of x-irradiation on hepatic cholesterol synthesis. R. G. GOULD, L. V. LOTZ* AND E. M. LILLY.* *Los Alamos Scientific Lab., Univ. of California, Los Alamos.*

1368. Succinoxidase system of Myrothecium verrucaria. J. L. HILTON* AND F. G. SMITH. *Iowa State College.*

1369. Mammalian gluconokinase. I. C. LEDER (intr. by M. E. MAVER). *Natl. Insts. of Health.*

1370. Differentiation of various types of carbohydrates by means of vanillin in acid medium. V. E. LEVINE AND W. W. BECKER.* *Creighton Univ. School of Medicine.*

1371. Trans-L-epoxysuccinate as an inhibitor of bacteria, and its reversal. W. R. MARTIN* AND J. W. FOSTER. *Univ. of Texas, Austin.*

1372. Fractionation of fluorine in milk. J. F. MCCLENDON AND J. GERSHON-COHEN.* *Albert Einstein Med. Center, Northern Division, Philadelphia.*

1373. Time-distribution of Selenium-75 in dog serum proteins as determined by paper electrophoresis. K. P. MCCONNELL, C. H. WABNITZ* AND D. ROTH.* *VA Hosp., Louisville.*

1374. Hemorrhagic kidneys in male rats of different ages. D. J. MULFORD AND C. E. OUTLAND.* *Univ. of Kansas.*

1375. Transacetalation. C. PIANTADOSI,* C. E. ANDERSON AND E. A. BRECHT.* *Univ. of North Carolina.*

1376. Biosynthesis of abnormal proteins in multiple myeloma. F. W. PUTNAM, F. MEYER* AND A. MIYAKE.* *Univ. of Chicago.*

1377. Biliary excretion of alkaline phosphatase in the rat. O. ROSENTHAL, G. CASTIGLIONI,* E. ARMOCIDA* AND J. HOBART.* *Univ. of Pennsylvania School of Medicine.*

1378. Phytic and other acids of the potato tuber. S. SCHWIMMER. *Western Utilization Research Branch, U. S. Dept. Agric., Albany, Calif.*

1379. Glucose metabolism in Streptomyces griseus. C. H. WANG, J. J. BIALY* AND C. M. GILMOUR.* *Oregon State College.*

1380. Lipid-protein complex in egg yolk. E. O. WEINMAN (intr. by H. LINEWEAVER). *Western Utilization Research Branch, U. S. Dept. Agric., Albany, Calif.*

1381. Distribution of malic dehydrogenase in liver cells. J. N. WILLIAMS, JR. AND F. T. DECASTRO.* *Univ. of Wisconsin.*

1382. Amino acids exposed during the autolysis of pepsin. M. B. WILLIAMSON. *School of Medicine and Grad. School, Loyola Univ.*

1383. Calcium requirement of azotobacter. O. WYSS AND M. W. CHU.* *Univ. of Texas, Austin.*

1384. Effect of added citrate upon the solubility of tricalcium phosphate in urine. C. L. YARBRO* AND J. C. ANDREWS. *Univ. of North Carolina School of Medicine.*

THE AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

Forty-sixth Annual Meeting

ATLANTIC CITY, APRIL 16–20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 16, 1:15 p.m.

Drug Metabolism I

MONDAY, 1:15 P.M.—RITZ-CARLTON, BALLROOM

Chairman: T. M. Brody

1:15 **1385.** Metabolism of thiouracil by th rat. ELLIOT SPECTOR* AND F. E. SHIDEMAN. *Univ. of Wisconsin.*

1:30 **1386.** Absorption and excretion of 5-methyl-5-phenylhydantoin in the rat. JOE B. NASH (intr. by GEORGE A. EMERSON). *Univ. of Texas Med. Branch, Galveston.*

1:45 **1387.** Metabolic hydroxylation of 5-phenyl derivatives of hydantoin. THOMAS C. BUTLER, *Univ. of North Carolina.*

2:00 **1388.** Metabolic fate of thiobarbital. MILTON T. BUSH AND BETTY LENTZ GRAY.* *Vanderbilt Univ.*

2:15 **1389.** Interrelationship between fat solubility, duration of action and passage into brain of various intravenous anesthetics. LESTER C. MARK, J. J. BURNS, NATALIE TROUSOF,* LEONARD BRAND,* E. M. PAPPER AND BERNARD B. BRODIE. *Columbia Univ., New York Univ. and Natl. Heart Inst.*

2:30 **1390.** Blood ammonia following administration of various hydrazino compounds. HERBERT MCKENNIS, JR. AND J. H. WEATHERBY. *Med. College of Virginia.*

2:45 **1391.** An enzymatic transformation of digitoxin studied polarographically. BARBARA A. SOLOMON* AND F. H. MEYERS. *Univ. of California.*

3:00 **1392.** Oxygen effects on digitoxin. C. D. PROCTOR, JOHN REBAR, JR. AND BLANCHE TIGERMAN REBAR (intr. by Y. T. OESTER). *Stritch School of Medicine and Grad. School.*

3:15 **1393.** Acceleration of the reduction of foreign compounds in vitro and in vivo by various dyes. JAMES R. FOUTS* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

3:30 **1394.** Chemical measurement of amethopterin in plasma and urine. M. V. FREEMAN* AND C. G. ZUBROD. *Natl. Cancer Inst.*

3:45 **1395.** Chemical estimation of acyl glucuronides: formation and urinary excretion in the human. DAVID SCHACHTER (intr. by HERMAN I. CHINN). *Randolph AFB.*

Drug Toxicity

MONDAY, 1:15 P.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: R. G. Smith

1:15 **1396.** Pharmacological and toxicological actions of heliotrine. C. L. ROSE,* P. N. HARRIS AND K. K. CHEN. *Lilly Research Labs.*

1:30 **1397.** Pharmacological effects of saponins of alfalfa and ladino clover. ROBERT H. WILSON, MARTIN B. SIDEMAN* AND FLOYD DEEDS. *Agric. Research Service, Albany, Calif.*

1:45 **1398.** Effect of hepatotoxins and metabolic inhibitors upon the biliary excretion of methoxychlor. JOHN H. WEIKEL, JR. (intr. by EDWIN P. LAUG). *Food and Drug Admin.*

2:00 **1399.** Therapy of cyanide poisoning. S. RICHARD HEISEY AND J. PALMER SAUNDERS (intr. by J. H. WILLS). *Chemical Corps Med. Labs.*

2:15 **1400.** Methemoglobin formation in the cat in relation to treatment of cyanide intoxication. J. PALMER SAUNDERS AND S. RICHARD HEISEY (intr. by R. V. BROWN). *Chemical Corps Med. Labs.*

2:30 **1401.** Inhibition of accumulation of chronically ingested lead in rats by simultaneous feeding of edathamil calcium disodium ($Na_2CaEDTA$). FREDERIC RIEDERS AND JOAN E. COPELAND.* *Jefferson Med. College.*

2:45 **1402.** Respiratory response of the dog to sodium selenite. MAX HEINRICH AND D. M. MACCANON (intr. by F. E. KELSEY). *Univ. of South Dakota.*

3:00 **1403.** Myelin degeneration in chickens with subacute administration of organic phosphorous insecticides. JOHN P. FRAWLEY, ROBERT E. ZWICKEY* AND HENRY N. FUYAT.* *Food and Drug Admin.*

3:15 **1404.** Chronic toxicity of FD&C orange No. 1. ANNE R. BOURKE,* ARTHUR A. NELSON AND O. GARTH FITZHUGH. *Food and Drug Admin.*

3:30 **1405.** Chronic toxicities of two food colors FD&C red No. 32 and FD&C orange No. 2. O. GARTH FITZHUGH, ARTHUR A. NELSON AND ANNE R. BOURKE.* *Food and Drug Admin.*

3:45 **1406.** Amelioration of myleran induced bone marrow damage in rats with homologous marrow injections. R. E. MAXWELL AND J. K. WESTON (intr. by A. C. BRATTON, JR.). *Parke, Davis & Co.*

4:00 **1407.** Hormonal effects on DDT storage in the white rat. WILLIAM F. DURHAM, CIPRIANO CUETO, JR. AND WAYLAND J. HAYES, JR. (intr. by CARL C. PFEIFFER). *Communicable Disease Ctr., Savannah, Ga.*

Cardiovascular I

MONDAY, 1:15 P.M.—RITZ-CARLTON, MEETING ROOM

Chairman: D. D. Bonnycastle

1:15 **1408.** Effects of cortisone on the perfused rabbit heart. MARVIN SHELTON,* WALTER M. BOOKER, ADELEKE ADEYEMO* AND GILBERT ALLEN.* *Howard Univ.*

1:30 **1409.** Influence of 9-alpha fluorohydrocortisone on the electrolyte distribution and contractility of isolated cat papillary muscle. RALPH D. TANZ AND GLENN M. CLARK (intr. by RICHARD W. WHITEHEAD). *Univ. of Colorado.*

1:45 **1410.** Effects of various cardiac stimulants and cardiac depressants on potassium exchange in the isolated perfused rabbit heart. B. KOROL* AND K. I. MELVILLE. *McGill Univ.*

2:00 **1411.** Effects of ouabain and veratridine on potassium exchange in the isolated guinea-pig heart. ROBERT L. VICK* AND J. B. KAHN, JR. *Univ. of Cincinnati.*

2:15 **1412.** Physostigmine transport in the human erythrocyte. W. C. HOLLAND AND G. V. AUDITORE.* *Vanderbilt Univ.*

2:30 **1413.** Experimental auricular fibrillation in the thyrotoxic dog. PHILLIP E. LEVEQUE (intr. by R. P. AHLQUIST). *Med. College of Georgia.*

2:45 **1414.** Arrhythmias induced by epinephrine and norepinephrine in dogs during the first fifteen days following coronary ligation. HARRIET M. MALING AND NEIL C. MORAN.* *Natl. Heart Inst.*

3:00 **1415.** Resuscitation from ventricular fibrillation induced by chloroform and epinephrine. A. E. DYER* AND J. K. W. FERGUSON. *Univ. of Toronto.*

3:15 **1416.** Effects of total epidural sympathetic block on cardiac arrhythmias developing during hypothermia. LEON I. GOLDBERG AND KURT F. SCHMIDT.* *Harvard Med. School.*

3:30 **1417.** Dose-response of epinephrine and of procaine amide during hypothermia. SAMUEL Q. MITCHELL,* FRANCES DA COSTA,* WALTER M. BOOKER, ROBERT R. WHEATON* AND ROBERT J. ROBINSON.* *Howard Univ.*

3:45 **1418.** Comparison of antiarrhythmic and local anesthetic actions, and toxicities of lidocaine hydrochloride, its bicycloheptyl and cyclohexyl analogs. M. L. GRAEME,* B. LEHOTZKY,* R. A. CADMUS,* E. A. SIEGMUND,* A. H. CAMPBELL, JR.* AND GO LU. *Ethicon, Inc.*

4:00 **1419.** Effect of some antihistaminic agents on experimental atrial flutter. MARTIN W. WINBURY AND BARBARA L. ALWORTH.* *Schering Corp.*

Monday Evening, April 16, 7:30 p.m.

Symposium: Synergism (joint with Biometric Society)

MONDAY, 7:30 P.M.—RITZ-CARLTON, BALLROOM

Chairman: Edwin J. de Beer

1420. Combined drug effects; shape of the problem. S. LOEWE. *Univ. of Utah College of Medicine, Salt Lake City.*

1421. Statistical aspects of synergism. C. I. BLISS. *Connecticut Agric. Exper. Station and Yale Univ., New Haven.*

1422. Combined action of antibiotics. ERNEST JAWETZ. *Univ. of California, San Francisco.*

1423. Synergism in chemotherapy. NATHAN MANTEL. *Natl. Cancer Inst., Bethesda, Md.*

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

Lost and Found Articles

Articles found in public rooms should be turned in to the Federation Office, Room 8 of Convention Hall, where owners may claim them on proper identification.

Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lobby of Convention Hall to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Tuesday Morning, April 17, 9:00 a.m.

Neuropharmacology I

TUESDAY, 9:00 A.M.—RITZ-CARLTON, BALLROOM

Chairman: N. J. Giarman

9:00 **1424.** Headache: reactivity of bulbar conjunctival vessels during the migraine type of headache and muscle contraction headache. ADRIAN M. OSTFELD* AND HAROLD G. WOLFF. *New York Hosp.-Cornell Med. Ctr.*

9:15 **1425.** Cerebral circulation. HAROLD D. GREEN, L. EARL WATTS* AND N. MAX LEWIS.* *Bowman Gray School of Medicine.*

9:30 **1426.** Distribution of radiochloride, radiosulfate, and inulin in brain of rats. D. M. WOODBURY, P. S. TIMIRAS, A. KOCH* AND A. BALLARD.* *Univ. of Utah.*

9:45 **1427.** Production of tremor and a Parkinson-like syndrome by 1-4 dipyrrolidino-2-butyne, 'Tremorine.' G. M. EVERETT, L. E. BLOCKUS,* I. M. SHEPPERD* AND J. E. P. TOMAN. *Abbott Labs. and Chicago Med. School.*

10:00 **1428.** Effectiveness of pagitane (cycrimine hydrochloride) and kemadrin (pyrocyclidine hydrochloride) in the prevention of airsickness. A. A. RENZI* AND LAWRENCE J. MILCH. *Randolph AFB.*

10:15 **1429.** Antagonism of nicotine-induced convulsions by ganglionic blocking drugs. CLEMENT A. STONE, KATHARINE L. MECKELNBURG* AND MARY L. TORCHIANA.* *Sharp & Dohme, Div. of Merck & Co., Inc.*

10:30 **1430.** Electroencephalographic patterns during first stage N_2O anesthesia. JOHN F. SCHWEISS, M. JACK FRUMIN AND ELI GOLDENSOHN (intr. by E. M. PAPPER). *Columbia-Presbyterian Med. Ctr., New York City.*

10:45 **1431.** Central actions of a convulsant barbiturate. EUGENE R. JOLLY* AND EDWARD F. DOMINO. *Univ. of Michigan.*

11:00 **1432.** Central depressant actions of ethyl trichloramate [ethyl (2,2,2-trichloro-1-hydroxyethyl carbamate)]. GRAHAM CHEN, JOHN W. KISSEL* AND EDWARD P. DOMINO. *Parke, Davis & Co. and Univ. of Michigan.*

11:15 **1433.** Effects of acetylcholine and atropine on stretch receptors in frog muscle. CEDRIC M. SMITH AND KLAUS R. UNNA. *Univ. of Illinois.*

11:30 **1434.** Treatment of tabun poisoning with atropine and metrazol. ROBERT V. BROWN AND LEA M. SOMERS.* *Army Chemical Center, Md.*

11:45 **1435.** Protection against acute hydrazine death in mice. JOHN F. O'LEARY AND AILI H. OIKEMUS (intr. by J. H. WILLS). *Army Chemical Center, Md.*

Drug Metabolism II

TUESDAY, 9:00 A.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: H. C. HODGE

9:00 **1436.** Metabolism of glutethimide-C^{14}. BARBARA S. D'ASARO,* HERBERT SHEPPARD* AND A. J. PLUMMER. *Ciba Pharmaceutical Products, Inc.*

9:15 **1437.** Metabolism of S^{35} chlorpromazine. JENS CHRISTENSEN AND ARTHUR W. WASE (intr. by JOSEPH R. DIPALMA). *Hahnemann Med. College.*

9:30 **1438.** Excretion of C^{14}-labeled colchicine. E. J. WALASZEK AND J. J. KOCSIS (intr. by E. M. K. GEILING). *Univ. of Chicago.*

9:45 **1439.** Metabolic products of C^{14}-labeled atropine in mice. JOHN D. GABOUREL AND ROBERT E. GOSSELIN (intr. by E. A. MAYNARD). *Univ. of Rochester.*

10:00 **1440.** Fate of papaverine. ALBERT SJOERDSMA,* JULIUS AXELROD, ROBERT SHOFER,* WILLIAM M. KING* AND JOHN D. DAVIDSON.* *Natl. Heart Inst.*

10:15 **1441.** Metabolism of 2,5,8-trimethylchromone. J. STANTON KING, JR., NORMAN H. LEAKE AND NELTA H. WARNOCK (intr. by LLOYD W. HAZLETON). *S. E. Massengill Co.*

10:30 **1442.** Biochemical response to trauma. II. Morphine conjugation. LEO R. GOLDBAUM, IRVING GRAY,* RICHARD A. RINK,* ROLAND R. RUECKERT* AND ALVIN S. OSTASHEVER.* *Walter Reed Army Inst. of Research.*

10:45 **1443.** Inhibitory action of N-allylnormorphine on enzymatic demethylation of narcotic drugs. JULIUS AXELROD AND JOSEPH COCHIN. *Natl. Inst. of Mental Health and Natl. Inst. of Arthritis and Metabolic Diseases.*

11:00 **1444.** Comparative distribution of morphine and nalorphine in dog brain. L. A. WOODS. *Univ. of Michigan.*

11:15 **1445.** Isolation of a purified form of bound morphine from human urine. JAMES

M. FUJIMOTO (intr. by E. LEONG WAY). *Univ. of California, San Francisco.*

11:30 **1446.** Metabolism of pyrimethamine. CARL C. SMITH, L. H. SCHMIDT, R. FRADKIN* AND J. IHRIG.* *Christ Hosp. Inst. of Med. Research, Cincinnati.*

11:45 **1447.** Changes in radioactivity of proteins and fats following exposure to drugs. FREDERICK SPERLING. *Natl. Inst. of Arthritis and Metabolic Diseases.*

Cardiovascular II

TUESDAY, 9:00 A.M.—RITZ-CARLTON, MEETING ROOM

Chairman: J. L. Ambrus

9:00 **1448.** Prevention of ventricular fibrillation by a somatotropic hormone preparation in experimental coronary artery occlusion. SOL ROTHMAN AND DAVID H. WATKINS (intr. by GEORG CRONHEIM). *Riker Labs. and Univ. of Colorado.*

9:15 **1449.** Influence of N-ethyl-3-piperidyl diphenyl acetate on premature ventricular contractions. LLOYD D. SEAGER AND DAVID BAUMANN.* *Univ. of Arkansas.*

9:30 **1450.** Comparison of toxic manifestations produced by three cardiac glycosides, digitoxin, digoxin and acetyl digitoxin. DAVID WAX AND JACOB KIRSHNER (intr. by ARTHUR C. DEGRAFF). *VA Hosp., Bronx, N. Y.*

9:45 **1451.** Antagonism by certain lactones of digitoxin toxicity. GEORGE J. COSMIDES,* TOM S. MIYA* AND C. JELLEFF CARR. *Purdue Univ.*

10:00 **1452.** Cardiovascular actions of NHI-196, an alkaloid from the seeds of Ormosia panamensis, a Central American tree. NEIL C. MORAN, GERTRUDE P. QUINN AND WILLIAM M. BUTLER, JR. (intr. by BERNARD B. BRODIE). *Natl. Heart Inst.*

10:15 **1453.** Neuromuscular and ganglionic blocking actions of NHI-196, a hypotensive alkaloid derived from Ormosia panamensis. GERTRUDE P. QUINN, WILLIAM M. BUTLER, JR. AND NEIL C. MORAN (intr. by BERNARD B. BRODIE). *Natl. Heart Inst.*

10:30 **1454.** Cardiac actions of epinephrine and levarterenol in the intact dog. T. C. WEST AND R. F. RUSHMER. *Univ. of Washington.*

10:45 **1455.** Chronotropic cardiac action of reserpine. OTTO KRAYER AND JAIME FUENTES.* *Harvard Med. School.*

11:00 **1456.** Cardiodecelerator and antiaccelerator effects of sparteine on the dog heart-lung preparation. J. FUENTES (intr. by O. KRAYER). *Harvard Med. School.*

11:15 **1457.** Depression of contractile force of isolated auricles by ryanodine. ROBERT F. FURCHGOTT AND TAISIJA DE GUBAREFF.* *Washington Univ.*

11:30 **1458.** Action of ryanodine on cardiovascular system of the cat. LEONARD PROCITA AND MATTHEW KULUZ (intr. by ERWIN E. NELSON). *St. Louis Univ.*

11:45 **1459.** Action of ryanodine on the isolated kitten auricle. IRA W. HILLYARD AND LEONARD PROCITA (intr. by ERWIN E. NELSON). *St. Louis Univ.*

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

Tuesday Afternoon, April 17, 1:15 p.m.

CNS Depressants

TUESDAY, 1:15 P.M.—RITZ-CARLTON, BALLROOM

Chairman: Leonard Cook

1:15 **1460.** Factors which affect the biological activity of thiopental. KARL AGRE AND CARL ALPER (intr. by J. R. DIPALMA). *Hahnemann Med. College.*

1:30 **1461.** Quantitation of analeptic activity in pentobarbital depression. JULIUS BELFORD AND FREDERICK F. KAO.* *State Univ. of New York.*

1:45 **1462.** Influence of dehydration on pentobarbital sleeping time in mice. JOSEPH F. BORZELLECA AND R. W. MANTHEI (intr. by J. M. COON). *Jefferson Med. College.*

2:00 **1463.** Effect of sodium azide on action of pentobarbital in mice. R. K. RICHARDS, J. D. TAYLOR, JEANNE C. DAVIN* AND ELEANOR M. SWENSON.* *Abbott Labs.*

2:15 **1464.** Double blind comparison of compound 22451, pentothal and surital. STANLEY M. CHERNISH,* CHARLES M. GRUBER, JR., MARION DEMEYER,* SHIRLEY LITTLEFIELD* AND VIRGIL K. STOELTING.* *Lilly Lab. for Clin. Research and Indiana Univ.*

2:30 **1465.** Clinical experiences during anesthesia with a new ultra-short-acting barbiturate. CHARLES M. GRUBER, JR., VIRGIL K. STOELTING,* M. L. HICKS* AND SAMUEL DOUGHTY.* *Lilly Lab. for Clin. Research and Indiana Univ.*

2:45 **1466.** Can psychiatric patients be used for evaluating hypnotic drugs? LOUIS LASAGNA AND JOHN IMBODEN.* *Johns Hopkins Med. School.*

3:00 **1467.** Hypnotic potency of thiopental sodium and thiamylal sodium in man. LOUIS R. ORKIN AND GEORGE MORALES.* *Yeshiva Univ.*

3:15 **1468.** Hypnotic effects of polyhydric alcohol-chloral hemi-acetals. DONALD K. ECKFELD,* RICHARD TISLOW AND JOSEPH SEIFTER. *Wyeth Inst. for Med. Research, Radnor, Pa.*

3:30 **1469.** Effect of antabuse on the action of paraldehyde in mice and dogs. M. L. KEPLINGER* AND J. A. WELLS. *Northwestern Univ.*

3:45 **1470.** Reaction of lymphocytic system to lethal and sublethal doses of alcohol. GERDA I. KLINGMAN AND GORDON R. HENNIGAR (intr. by HARVEY B. HAAG). *Med. College of Virginia.*

4:00 **1471.** Xenon and chloroform transfer between blood and brain in the dog. C. B. PITTINGER, H. L. CONN, JR.* AND R. M. FEATHERSTONE. *State Univ. of Iowa and Brookhaven Natl. Lab.*

Drug Metabolism III

TUESDAY, 1:15 P.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: J. D. Taylor

1:15 **1472.** Effects of cholinergic agents on the incorporation of P^{32} into the phospholipids of cell free preparations of brain cortex. LOWELL E. HOKIN AND IRENA MAZURKIEWICZ.* *McGill Univ.* (Biochem.)

1:30 **1473.** Effect of anti-malarial drugs on carbohydrate metabolism of cardiac muscle in vitro. MARILYN E. HESS AND NIELS HAUGAARD (intr. by GRAYSON P. MCCOUCH). *Univ. of Pennsylvania.* (Physiol.)

1:45 **1474.** Mechanism of inhibitory action of stibophen on glycolysis of Schistosoma mansoni. ERNEST BUEDING AND JOAN MACKINNON MANSOUR.* *Louisiana State Univ.*

2:00 **1475.** Stimulation of mouse pancreas enzyme secretion and respiration in vitro by drugs and pancreozymin. SHERMAN R. DICKMAN AND GENE A. MORRILL.* *Univ. of Utah.* (Biochem.)

2:15 **1476.** Fluoropyruvic acid: toxic and metabolic effects. HARRIS BUSCH. *Univ. of Illinois.* (Biochem.)

2:30 **1477.** Metabolism of lidocaine-C^{14} in vitro. I. C. GEDDES AND D. E. DOUGLAS (intr. by D. L. THOMSON). *McGill Univ.* (Biochem.)

2:45 **1478.** Toxicity and metabolism of ethyltrichloramate (HY-185, 2,2,2-trichloro-1-hydroxyethylcarbamic acid, ethyl ester). A. J. GLAZKO, L. M. WOLF,* W. A. DILL* AND J. K. WESTON.* *Parke, Davis and Co.* (Physiol.)

3:00 **1479.** Metabolism of nickel following inhalation of nickel carbonyl. RALPH E. TEDESCHI* AND F. WILLIAM SUNDERMAN. *Jefferson Med. College.* (Biochem.)

3:15 **1480.** Chromatographic method for extracting acetic acid from animal tissues and incubation fluids. LIE TJING HIEN AND THOMAS N. BURBRIDGE (intr. by HAMILTON H. ANDERSON). *Univ. of California, San Francisco and Univ. of Indonesia, Djakarta.*

3:30 **1481.** Renal excretion of some iodinated amino acid derivatives by the dog. K. C. HUANG* AND P. K. KNOEFEL. *Univ. of Louisville.*

3:45 **1482.** Metabolism and enhancement of radiostrontium excretion in man. MARTIN L. CHARLES, HERTA SPENCER, ARTHUR GOLDMAN, SAMUEL KORMAN AND DANIEL LASZLO (intr. by JULIAN B. HERRMANN). *Montefiore Hosp.*

Cardiovascular III

TUESDAY, 1:15 P.M.—RITZ-CARLTON, MEETING ROOM

Chairman: M. W. Winbury

1:15 **1483.** Action of furfurylideneacetone and related compounds on the cardiovascular system. MERVYN G. HARDINGE (intr. by ROBERT DREISBACH). *College of Med. Evangelists and Stanford Univ.*

1:30 **1484.** Cardiovascular action of Viadril (21-hydroxypregnanedione sodium succinate). A. SCRIABINE* AND D. E. HUTCHEON. *Chas. Pfizer & Co., Inc.*

1:45 **1485.** Myocardial activity of some sympathomimetic amines. JEROME M. GLASSMAN,* ROBERT W. HEATON* AND JOSEPH SEIFTER. *Wyeth Inst. for Med. Research, Radnor, Pa.*

2:00 **1486.** Coronary vasodilator properties of purine and pyrimidine derivatives. MARY M. WOLF AND ROBERT M. BERNE (intr. by GEORGE SAYERS). *Western Reserve Univ.*

2:15 **1487.** Coronary vasodilator action of cinnamyl vonedrine (N-methyl-N-cinnamyl-2-phenyl-propylamine). GERALD A. KIEN,* ALLEN W. GOMOLL* AND THEODORE R. SHERROD. *Univ. of Illinois.*

2:30 **1488.** Blood flow in the thyroid gland of the dog. JAMES H. SHINABERGER* AND H. D. BRUNER. *Emory Univ.*

2:45 **1489.** Influence of various substances on the uptake of epinephrine by the liver. ERNEST C. GRIESEMER* AND J. A. WELLS. *Northwestern Univ.*

3:00 **1490.** High spinal anesthesia as an adjunct to hypothermia in man. GEORGE MORALES AND ALDO MORELLO (intr. by LOUIS R. ORKIN). *Yeshiva Univ. and New York Univ.*

3:15 **1491.** Cardiovascular actions of choline chloride. HENRY H. SWAIN (intr. by T. M. BRODY). *Univ. of Michigan.*

3:30 **1492.** Pseudotachyphylaxis. ROBERT A. WOODBURY AND JOHN W. WILKS.* *Univ. of Tennessee.*

3:45 **1493.** Ventricular electrolyte shift during variation of contractile force. E. BAY AND I. BAY (intr. by W. S. WILDE). *Tulane Univ.* (Physiol.)

4:00 **1494.** Re-evaluation of potency and properties of acetyl strophanthidin. A. H. RYAN, W. WEIL* AND J. SPINZIA.* *Chicago Med. School.* (Physiol.)

Pharmacology Society Business Meeting

TUESDAY, 4:30 P.M.—RITZ-CARLTON, BALLROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONVENTION HALL, BALLROOM

Program on page 628

Wednesday Morning, April 18, 9:00 a.m.

Analgesic Drugs

WEDNESDAY, 9:00 A.M.—RITZ-CARLTON, BALLROOM

Chairman: C. Gruber, Jr.

9:00 **1495.** Relationship of significance of wound to pain experienced. HENRY K. BEECHER. *Harvard Med. School.*

9:15 **1496.** Analgesic power and toxic effects in man of dihydrocodeine and dihydroisocodeine compared with morphine and a placebo. JOACHIM S. GRAVENSTEIN,* GENE M. SMITH,* RAYMOND D. SPHIRE,* JAMES P. ISAACS* AND HENRY K. BEECHER. *Harvard Med. School.*

9:30 **1497.** Vasopressin potentiation of morphine action in rats. T. K. ADLER, R. GEORGE* AND H. W. ELLIOTT. *Univ. of California, San Francisco.*

9:45 **1498.** Analgesic-potentiating and diuretic effects of 1-dimethylamino-3-cyano-3-phenyl-4-methyl-hexane HCl (Z_4) and 1 - dimethylamino - 2 - phenyl - 3 - methyl - pentane HCL (Z_{124}). JAMES Y. P. CHEN. *Marquette Univ.*

10:00 **1499.** Analgesic tests based upon experimentally induced acute abdominal pain in rats. C. VANDER WENDE AND S. MARGOLIN (intr. by GO LU). *Schering Corp.*

10:15 **1500.** 1-3-hydroxy-N-propargyl morphinan (Ro-1-7780), a new opiate antagonist. ROBERT MEGIRIAN AND CHESTER W. WHITE, JR. (intr. by EARL H. DEARBORN). *Boston City Hosp. and Boston Univ.*

10:30 **1501.** Clinical studies of morphine-nalorphine combinations. R. W. HOUDE AND S. L. WALLENSTEIN.* *Memorial Ctr., New York City.*

10:45 **1502.** Effect of previous morphine administration on subjective effects of nalorphine. ARTHUR S. KEATS AND JANE TELFORD.* *Baylor Univ. and Jefferson Davis Hosp., Houston.*

11:00 **1503.** Mechanism of action of N-allylnormorphine in morphine-induced respiratory depression in man. HERBERT WENDEL AND CHRISTIAN J. LAMBERTSEN. *Univ. of Pennsylvania.*

11:15 **1504.** Continuous control of alveolar pCO_2 in man in studies of meperidine-induced respiratory depression. C. J. LAMBERTSEN AND H. WENDEL. *Univ. of Pennsylvania.*

11:30 **1505.** Minimum dose of barbiturates required to produce physical dependence. H. F. FRASER, HARRIS ISBELL, A. WIKLER, R. E. BELLEVILLE,* C. F. ESSIG* AND H. E. HILL.* *Natl. Inst. of Mental Health, Lexington, Ky.*

11:45 **1506.** Clinical analgesic assay of dihydrohydroxymorphinone. S. L. WALLENSTEIN* AND R. W. HOUDE. *Memorial Ctr., New York City.*

Drug Enzymology: Oxidative Phosphorylation

WEDNESDAY, 9:00 A.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: S. Barker

9:00 **1507.** Effects of certain ribosides and ribotides on cation transfer in human erythrocytes. J. B. KAHN, JR. *Univ. of Cincinnati.*

9:15 **1508.** Differentiation of amino acid esterases of rat skin extracts. CHARLES J. MARTIN (intr. by T. K. T. KRUSE). *Univ. of Pittsburgh.*

9:30 **1509.** Effect of lysergic acid diethylamide, serotonin and related compounds on a parasitic trematode, Fasciola hepatica. TAG E. MANSOUR (intr. by E. BUEDING). *Louisiana State Univ.*

9:45 **1510.** Oxidative phosphorylation in liver mitochondria of hypothyroid rats. M. A. SPIRTES AND A. ANDOS.* *Hahnemann Med. College.*

10:00 **1511.** Effect of various mitotic inhibitors on oxidative phosphorylation. SYDNEY SPECTOR* AND KWANG SOO LEE. *Jefferson Med. College.*

10:15 **1512.** Effects of dinitrophenol on carbohydrate metabolism of rat brain mince. HERBERT S. SCHWARTZ* AND S. B. BARKER. *Alabama Med. Ctr.*

10:30 **1513.** Phosphate response in analgesic medication to rabbits. E. F. KEITH,* J. WEISBERG* AND B. DEBOER. *Univ. of North Dakota.*

10:45 **1514.** Effect of certain narcotics on oxidative phosphorylation. EDWARD B. TRUITT, JR., ARTHUR WOLPERT,* FREDERICK K. BELL* AND JOHN C. KRANTZ, JR. *Univ. of Maryland.*

11:00 **1515.** Effects of anesthesia on inter-

mediary carbohydrate metabolism. DOROTHY H. HENNEMAN* AND JOHN P. BUNKER. *Harvard Med. School.*

11:15 **1516.** Effects of depressants and convulsants on in vivo incorporation of inorganic phosphate into acid-soluble nucleotides of brain. JAMES A. BAIN. *Emory Univ.*

11:30 **1517.** Digitoxin effects on ATPase from dilated heart muscle. JOHN REBAR, JR., BLANCHE REBAR AND C. D. PROCTOR (intr. by Y. T. OESTER). *Stritch School of Medicine.*

11:45 **1518.** Digitoxin effects on cholinesterase from dilated heart muscle. BLANCHE TIGERMAN REBAR, JOHN REBAR, JR. AND C. D. PROCTOR (intr. by Y. T. OESTER). *Stritch School of Medicine.*

Pharmacology of Muscle and Ganglia

WEDNESDAY, 9:00 A.M.—RITZ-CARLTON, MEETING ROOM

Chairman: K. K. Kimura

9:00 **1519.** Effects of magnesium excess and calcium lack on frog muscle R. P. in vitro. A. R. MCINTYRE, PAUL YOUNG* AND FREDERICK WARE.* *Univ. of Nebraska.*

9:15 **1520.** Influence of tension and neuromuscular blocking agents on tetanus. W. L. KUHN* AND E. F. VAN MAANEN. *Univ. of Cincinnati.*

9:30 **1521.** Influence of rate of stimulation and fatigue on sensitivity to neuromuscular blocking agents. L. WISLICKI (intr. by CARL C. PFEIFFER). *Hebrew Univ., Israel.*

9:45 **1522.** Pharmacologic studies of pyrrolidylmethyl nortricyclene and bicycloheptenes. ANNE CAMERON (intr. by GO LU). *Ethicon, Inc., New Brunswick, N. J.*

10:00 **1523.** Further evidence for constrictor and dilator cells in sympathetic ganglia. ROBERT W. GARDIER,* BENEDICT E. ABREU, WILLIAM M. ALEXANDER* AND ALICE B. RICHARDS.* *Pitman-Moore Co.*

10:15 **1524.** Ganglionic stimulating and curariform activity of dihydromurexine bromide (Ro 2-9101). CECILIA CONROY,* BERYL KAPPELL,* TINA FERRUGGIA* AND LOWELL O. RANDALL. *Hoffmann-La Roche, Inc.*

10:30 **1525.** Mechanism of action of 3,6-bis (3-diethylaminopropoxy) pyridazine bismethiodide, a long acting neuromuscular blocking agent. R. M. GESLER* AND JAMES O. HOPPE. *Sterling-Winthrop Research Inst.*

10:45 **1526.** Response of normotensive and neurogenic hypertensive dogs to ganglionic blocking agents and reserpine. R. A. MAXWELL,* A. J. PLUMMER AND S. ROSS.* *Ciba Pharmaceutical Products, Inc.*

11:00 **1527.** Protective effect of ganglionic blocking agents on traumatic shock in the rat. CHARLES A. ROSS AND STEPHEN A. HERCZEG (intr. by KARL H. BEYER). *Sharp & Dohme, Div. of Merck & Co., Inc.*

11:15 **1528.** Influence of stimulation frequency on transmission through parasympathetic and sympathetic ganglia under various pharmacological conditions. R. MOORE,* E. SIGG* AND J. A. SCHNEIDER. *Ciba Pharmaceutical Products, Inc.*

11:30 **1529.** Methods of analysis of chlorisondamine chloride in body fluids. HERBERT SHEPPARD,* A. J. PLUMMER AND NANCY D. SABBAGH.* *Ciba Pharmaceutical Products, Inc.*

11:45 **1530.** Effect of ganglionic blocking agents upon mesenteric blood flow in the anesthetized dog. JOSEPH H. TRAPOLD AND JOAN G. SULLIVAN.* *Louisiana State Univ.*

12:00 **1531.** Neuromuscular blocking action of prestonal in anesthetized man. L. RENDELL-BAKER,* JOHN H. BIRCH,* PETER B. D'SOUZA* AND FRANCIS F. FOLDES. *Mercy Hosp., and Univ. of Pittsburgh.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Wednesday Afternoon, April 18, 1:15 p.m.

Anticonvulsants

WEDNESDAY, 1:15 P.M.—RITZ-CARLTON, BALLROOM

Chairman: D. Woodbury

1:15 **1532.** EEG-flicker test for anticonvulsive drugs. T. C. BARNES. *Hahnemann Med. College.*

1:30 **1533.** Effects of STH alone and in combination with ACTH and cortisone acetate on EST. SALVATORE J. DESALVA AND R. A. EVANS (intr. by N. ERCOLI). *Armour Labs.*

1:45 **1534.** Effects of prednisone, prednisolone and fludrocortisone acetate on electroshock seizure threshold. LEO F. MANSOR,* DORSEY E. HOLTKAMP, ARTHUR E. HEMING AND HOWARD H. CHRISTIAN.* *Smith, Kline and French Labs.*

2:00 **1535.** Anticonvulsive actions of bicycloheptene derivatives in mice. E. A. SIEGMUND,* R. A. CADMUS,* A. H. CAMPBELL, JR.,* M. J. PENEK* AND GO LU. *Ethicon, Inc., New Brunswick, N. J.*

2:15 **1536.** Comparative effects of chlorpromazine and reserpine on electroshock seizure threshold. HOWARD H. CHRISTIAN,* DORSEY E. HOLTKAMP, ARTHUR E. HEMING AND LEO F. MANSOR.* *Smith, Kline and French Labs.*

2:30 **1537.** Duration of anticonvulsant action of trimethadione and some demethylated oxazolidinediones against pentylenetetrazol in mice. J. D. TAYLOR, JEANNE C. DAVIN* AND R. K. RICHARDS. *Abbott Labs.*

2:45 **1538.** Effects of acetazoleamide (Diamox) upon blood sugar of normal and diabetic patients. ARTHUR J. GROSSMAN,* NINA FIGUROVSKY* AND ROBERT C. BATTERMAN. *New York Med. College.*

3:00 **1539.** Production of tolerance to the anticonvulsant effect of acetazoleamide. ALAN KOCH* AND DIXON M. WOODBURY. *Univ. of Utah.*

3:15 **1540.** Anticonvulsant activity of 5-acetylimino-4-methyl-Δ^3-1, 3, 4-thiadiazoline-2-sulfonamide (CL 13,912), a new carbonic anhydrase inhibitor. W. D. GRAY, T. H. MAREN, G. M. SISSON* AND F. H. SMITH.* *American Cyanamid Co.*

3:30 **1541.** Pharmacology of 5-acetylimino-4 - methyl-Δ^3 -1,3,4 - thiadiazoline - 2 -sulfonamide (CL 13,912), a new carbonic anhydrase inhibitor. GEORGE M. SISSON* AND THOMAS H. MAREN. *American Cyanamid Co.*

3:45 **1542.** Effects of two amino acids and their amides on convulsions induced experimentally. IRVING I. A. TABACHNICK,* R. E. PARKER,* J. WAGNER* AND F. H. SCHULTZ, JR. *Baxter Labs.*

4:00 **1543.** Blocking action of Dilantin upon pituitary-adrenal system. DESMOND D. BONNYCASTLE AND ARVID J. BRADLEY.* *Yale School of Medicine.*

Chemotherapy

WEDNESDAY, 1:15 P.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: E. Bueding

1:15 **1544.** Response of various Neurospora strains to Azo dyes. P. S. THAYER,* D. C. MAHONEY* AND C. J. KENSLER. *Arthur D. Little, Inc., Cambridge, Mass.*

1:30 **1545.** Effect of auxins and antiauxins on growth of fungi. IAN M. FRASER AND B. FUJIKAWA (intr. by CHARLES M. GRUBER). *College of Med. Evangelists.*

1:45 **1546.** Anthelmintic activity of nicarbazin. A. C. CUCKLER, J. R. EGERTON AND D. E. FOGG (intr. by HANS MOLITOR). *Merck Inst. for Therapeutic Research.*

2:00 **1547.** Comparative effects of corticosterone and cortisone on experimental corynebacterium infection of mice. RICHARD C. MASON,* DAVID H. JOHNSON* AND HARRY J. ROBINSON. *Merck Inst. for Therapeutic Research.*

2:15 **1548.** Failure of cortisone to inhibit acquired immunity to Trypanosoma equiperdum in the rat. WILLIAM CANTRELL. *Univ. of Louisville.*

2:30 **1549.** Cure of Trypanosoma equiperdum infection in mice with netropsin and with blood fractions. ATHANASIUS E. J. YOO,* JOE B. NASH* AND G. A. EMERSON. *Univ. of Texas Med. Branch, Galveston.*

2:45 **1550.** Drugs inhibiting influenza virus, strain A, PR8, in tissue culture. GERTRUDE S. LUM* AND PAUL K. SMITH. *George Washington Univ.*

3:00 **1551.** Inhibition of influenza A virus in tissue culture by canavanine flavianate.

W. D. KUNDIN,* M. L. ROBBINS* AND PAUL K. SMITH. *George Washington Univ.*

3:15 **1552.** Inhibition of poliomyelitis virus by metabolic analogues in mammalian tissue cultures. ARIEL C. HOLLINSHEAD* AND PAUL K. SMITH. *George Washington Univ.*

3:30 **1553.** Absorption, distribution and fate of sulfaethylthiadiazole administered orally and intravenously. E. L. FOLTZ, J. V. SWINTOSKY* AND M. J. ROBINSON.* *Univ. of Pennsylvania and Smith, Kline and French.*

3:45 **1554.** Correspondence between bacteriologic responses of urinary infections to treatment with nitrofurantoin and responses of isolated bacteria to in vitro sensitivity tests. ERNST H. BEUTNER, HOWARD E. LIND AND HOWARD M. TRAFTON (intr. by PETER B. DEWS). *Brooks Hosp., Brookline, Mass.*

4:00 **1555.** Method for assay of cathartic agents in ambulant patients. T. GREINER, H. GOLD, I. BROSS,* L. WARSHAW* AND N. KWIT.* *Cornell Univ., Beth Israel Hosp. and Hosp. for Joint Diseases, New York City.*

4:15 **1556.** Colicine K, antibiotic or provirus? GUY T. BARRY* AND WALTHER F. GOEBEL. *Labs. of Rockefeller Inst. for Med. Research.* (Immunol.)

Autonomic Drugs I

WEDNESDAY, 1:15 P.M.—RITZ-CARLTON, MEETING ROOM

Chairman: R. A. Woodbury

1:15 **1557.** Chemical assay of epinephrine and norepinephrine in plasma. HENRY L. PRICE AND ARTHUR DET. VALK, JR.* *Univ. of Pennsylvania Hosp.*

1:30 **1558.** Effect of CO_2 inhalation on plasma concentrations of epinephrine and arterenol. J. A. RICHARDSON AND E. F. WOODS.* *Med. College of South Carolina.*

1:45 **1559.** Content of adrenal medulla catecholamines as influenced by 3-hydroxytyramine. GEORGE L. ELLMAN (intr. by M. B. CHENOWETH). *Dow Chemical Co.*

2:00 **1560.** Effect of smoking on urinary output of epinephrine and norepinephrine in man. D. T. WATTS AND A. D. BRAGG.* *West Virginia Univ.*

2:15 **1561.** Effect of flavonoids on vascular bed of the perfused rat hind limb. ANTHONY M. AMBROSE AND NICHOLAS P. PLOTNIKOFF.* *Agric. Research Service, Albany, Calif.*

2:30 **1562.** Effect of adrenergic mediators on intracellular distribution of potassium in the liver. G. V. AUDITORE* AND W. C. HOLLAND. *Vanderbilt Univ.*

2:45 **1563.** Interrelations between potassium, histamine and acetylcholine upon reactivity of isolated arteries. DURWOOD J. SMITH AND WILLIAM H. MACMILLAN.* *Univ. of Vermont.*

3:00 **1564.** Analogues of arterenol. R. S. MCCUTCHEON* AND R. P. AHLQUIST. *Med. College of Georgia.*

3:15 **1565.** Influence of histamine and histamine liberator, compound 48/80, on blood glucose of unanesthetized animals. C. A. PAPACOSTAS,* P. MOZDEN* AND EARL R. LOEW. *Boston Univ.*

3:30 **1566.** New hypotensives with central and peripheral actions. ROBERT L. MOFFITT* AND ROBERT K. S. LIM. *Miles-Ames Research Lab., Elkhart, Ind.*

3:45 **1567.** Effect of chlorpromazine on cardiovascular responses to epinephrine and norepinephrine in the cat. W. R. MARTIN (intr. by K. R. UNNA). *Univ. of Illinois.*

4:00 **1568.** Acetylcholine effects on the nictitating membrane. GLORIA C. FEENEY,* MARGARET AVERY* AND THEODORE KOPPANYI. *Georgetown Med. School.*

Pharmacology Society Dinner

WEDNESDAY, 7:00 P.M.—MARLBOROUGH-BLENHEIM HOTEL

Thursday Morning, April 19, 9:00 a.m.

Neuropharmacology II

THURSDAY, 9:00 A.M.—RITZ-CARLTON, BALLROOM

Chairman: A. J. Karczmar

9:00 **1569.** Comparative effects of some Rauwolfia alkaloids on central vasoregulatory mechanisms. K. P. BHARGAVA* AND H. L. BORISON. *Univ. of Utah.*

9:15 **1570.** Reserpine effect in the medullary vasomotor mechanism of the cat. BERT S. HORWITZ* AND S. C. WANG. *Columbia Univ.*

9:30 **1571.** Effects of chlorpromazine on the EEG and its activation. EDMUND W. J. DEMAAR AND W. R. MARTIN (intr. by K. R. UNNA). *Univ. of Illinois.*

9:45 **1572.** Chlorpromazine: a possible mechanism of action. JAMES B. PRESTON (intr. by G. K. MOE). *State Univ. of New York, Syracuse.*

10:00 **1573.** Effect of serotonin on cerebral oxygen tension and evoked electrical activity in the cerebral cortex. VICTOR DISTEFANO, DANIEL E. LEARY AND ISAAC FELDMAN (intr. by J. N. STANNARD). *Univ. of Rochester.*

10:15 **1574.** Relation between the cerebral synaptic actions of mescaline, indoles and tranquilizers. THOMAS W. LANGFITT,* E. ROSS HART AND AMEDEO S. MARRAZZI. *Army Chemical Ctr.*

10:30 **1575.** Central inhibition in electroshock seizure pattern, and its modification by stress and drugs. J. E. P. TOMAN, G. M. EVERETT AND A. H. SMITH, JR.* *Chicago Med. School and Abbott Labs.*

10:45 **1576.** Uptake of reserpine-C^{14} by various areas of the cat brain. WEN HUI TSIEN,* E. B. SIGG,* HERBERT SHEPPARD,* A. J. PLUMMER AND J. A. SCHNEIDER. *Ciba Pharmaceutical Products, Inc.*

11:00 **1577.** Effect of ambient temperature on thermal responses to drugs. IRVING SHEMANO* AND MARK NICKERSON. *Univ. of Manitoba.*

11:15 **1578.** Effect of known metabolic antagonists on body-temperature control of intact rats. DORSEY E. HOLTKAMP, ARTHUR E. HEMING, DORIS B. HUNTSMAN,* MARGARET C. DOGGETT* AND ALFRED R. MAASS.* *Smith, Kline and French Labs.*

11:30 **1579.** Pneumatic movement recorder for small animals. F. F. ANDERSON AND G. WAGLE (intr. by A. J. PLUMMER). *Ciba Pharmaceutical Products Inc.*

11:45 **1580.** Applicability of a new gas analyzer for measuring respiratory gases. FRANK T. CUCHIE, SAMUEL KUNA, MICHAEL KNIAZUK AND F. ROBERT PREDIGER (intr. by HANS MOLITOR). *Merck Inst. for Therapeutic Research.*

Renal Pharmacology

THURSDAY, 9:00 A.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: D. S. Riggs

9:00 **1581.** Technical factors that alter renal function in lumbar aortography. CECIL M. COUVES,* E. STANLEY CRAWFORD,* JOHN H. MOYER AND MICHAEL E. DEBAKEY.* *Baylor Univ.*

9:15 **1582.** A diuretic screening procedure. ROY ASTON* AND HARRY W. HAYS. *Univ. of Toronto and Wayne Univ.*

9:30 **1583.** Arterial pressure and renal functions during intravenous infusions of serotonin in rats. FRANCESCO DEL GRECO,* G. M. C. MASSON* AND A. C. CORCORAN. *Cleveland Clinic Fndn.*

9:45 **1584.** Effect of acidosis and alkalosis on reduction of renal cellular protein-bound sulfhydryl concentration produced by a mercurial diuretic. A. FARAH, R. KRUSE,* C. H. BENDER* AND E. CAFRUNY.* *State Univ. of New York, Syracuse.*

10:00 **1585.** Chromatographic separation of excretory products after meralluride administration in normal subjects. J. R. STRAWN,* C. A. HANDLEY, B. KENT* AND R. A. SEIBERT. *Baylor Univ.*

10:15 **1586.** Meralluride excretion products by chromatographic separation in patients requiring mercurial diuresis. BARTIS KENT,* CARROLL HANDLEY, JOHN STRAWN* AND JOHN MOYER. *Baylor Univ.*

10:30 **1587.** Assay of antidiuretic principle in normal and long-term diabetes insipidus dogs. WILLIAM P. BLACKMORE (intr. by ANDRES GOTH). *Univ. of Texas, Dallas.*

10:45 **1588.** Morphine antidiuresis in rats with hypothalamic lesions. ROBERT GEORGE* AND E. LEONG WAY. *Univ. of California, San Francisco.*

11:00 **1589.** Influence of potassium on the

renal tubular excretion of basic organic compounds. A. KANDEL (intr. by E. BUEDING). *Tulane Univ.*

11:15 **1590.** Secretion of choline by the renal tubules in the chicken. BARBARA R. RENNICK. *State Univ. of New York, Syracuse.*

11:30 **1591.** Effect of colchicine on body temperature and urine volume in several species of animals. R. W. BALEK,* J. J. KOCSIS* AND E. M. K. GEILING. *Univ. of Chicago.*

11:45 **1592.** Comparative pharmacology of various carbamidines substituted with one to five ethyl groups. DAVID F. MARSH. *McNeil Labs.*

Autonomic Drugs II

THURSDAY, 9:00 A.M.—RITZ-CARLTON, MEETING ROOM

Chairman: F. C. Ferguson, Jr.

9:00 **1593.** Action of purines, nucleosides and nucleotides on the guinea pig tracheal train. HAROLD BLUMBERG, HYMAN B. DAYTON* AND SAMUEL M. GORDON.* *Endo Products Inc., Richmond Hill, N. Y.*

9:15 **1594.** Hypotensive activity of the combination of a new oral adrenolytic drug and reserpine in renal hypertensive rats. H. MINATOYA (intr. by F. P. LUDUENA). *Sterling-Winthrop Research Inst.*

9:30 **1595.** Chlorpromazine in normal and tourniquet-shocked mice. R. CARL MILLICAN. *Natl. Insts. of Health.*

9:45 **1596.** Cardiac glycosides in tumbling shock. ALEXANDER C. KEYL* AND WILLIAM C. NORTH. *Northwestern Univ.*

10:00 **1597.** Shock produced in dogs by infusions of norepinephrine. ALBERT C. YARD* AND MARK NICKERSON. *Univ. of Manitoba.*

10:15 **1598.** Hypotensive action of 1-phenyl-2 - dimethylaminoethoxymethyl - tetrazole hydrochloride (TT-209). G. K. W. YIM,* E. G. GROSS AND H. H. KEASLING. *State Univ. of Iowa.*

10:30 **1599.** Pharmacologic studies on 8-(para-aminobenzyl) caffeine hydrochloride as a blood pressure depressant. RAYMOND M. BURGISON,* W. EDWARD O'MALLEY* AND JOHN C. KRANTZ, JR. *Univ. of Maryland.*

10:45 **1600.** Activity relationships in animals of a series of organic di-azides. L. W. ROTH AND B. B. MORPHIS.* *Abbott Labs.*

11:00 **1601.** Effects of several types of antihypertensive agents on the vasomotor response to tilt in dogs (orthostatic hypotension). NICHOLAS A. PRIOLI* AND MARTIN M. WINBURY. *Schering Corp.*

11:15 **1602.** Mechanism of prolonged adrenergic blocking action of Dibenzyline. MARK NICKERSON. *Univ. of Manitoba.*

11:30 **1603.** Drug therapy of hypertension in the elderly patient. SAM KINARD, EDWARD DENNIS AND ROBERT HERSCHBERGER (intr. by RICHARD A. SEIBERT). *Baylor Univ.*

11:45 **1604.** Alleviation of toxic effects of veratrum by chlorpromazine in the treatment of hypertension. PAUL K. CONNER, JR. AND ROBERT G. MCCONN (intr. by RUSSELL HUGGINS). *Hermann Hosp. and Baylor Univ.*

Offices

Federation Office, Room 8, Ballroom level, Convention Hall

Exhibit Manager's Office, Main Arena, Convention Hall

Thursday Afternoon, April 19, 1:15 p.m.

Autonomic Drugs III

THURSDAY, 1:15 P.M.—RITZ-CARLTON, BALLROOM

Chairman: J. A. Richardson

1:15 **1605.** Influence of calcium ions on normal tonus and histamine response of isolated guinea pig ileum. WILLIAM D. HARKNESS,* LEON HURWITZ* AND GEOFFREY WOODARD. *Food and Drug Admin.*

1:30 **1606.** Bronchodilator and blood pressure activities of a series of N-alkyl-o-methoxy (and o-hydroxy)-β-phenylisopropylamines. CALVIN HANNA AND ROBERT L. DRIVER. *Univ. of Vermont.*

1:45 **1607.** Some pharmacological properties of the quaternary oxazolium compounds. THOMAS J. HALEY, W. G. MCCORMICK* AND A. M. FLESHER.* *Univ. of California at Los Angeles.*

2:00 **1608.** Effect of total spinal anesthesia upon blood pressure responses to histamine. JAMES G. HILTON AND SHELBY C. REID.* *Univ. of Mississippi.*

2:15 **1609.** Eosinopenic response to cortisone, histamine and epinephrine and prevention of this change by tripelennamine. HARRY W. HAYS AND VIRGINIA L. ZARATZIAN.* *Wayne Univ.*

2:30 **1610.** Potentiation, in man, of cardiovascular response to epinephrine by diphenhydramine hydrochloride (Benadryl). HOWARD L. ZAUDER, GEORGE A. MORALES* AND LOUIS R. ORKIN. *Yeshiva Univ.*

2:45 **1611.** Gastric antisecretory and antimotility agents. F. E. ROTH,* E. ECKHARDT, A. MAKOVSKY* AND W. M. GOVIER. *Schering Corp.*

3:00 **1612.** Spasmolytic activity of atropine. JOHN W. WARD,* EDWIN H. GRAY* AND LLOYD W. HAZLETON. *Hazleton Labs., Falls Church, Va.*

3:15 **1613.** Biogenesis of atropine. F. R. WEST AND E. S. MIKA (intr. by E. M. K. GEILING). *Univ. of Chicago.*

3:30 **1614.** Survival time of rats with damaged livers after severe hemorrhage. G. CARL RAU AND EMANUEL A. ROSEN (intr. by LESLIE L. EISENBRANDT). *Univ. of Kansas City.*

3:45 **1615.** Tissue damage by macromolecules. L. E. DETRICK,* H. C. UPHAM* AND THOMAS J. HALEY. *University of California at Los Angeles.*

4:00 **1616.** Response of microscopic circulation to dextran and polyvinylpyrrolidone following hemorrhage during hypothermia. R. A. WAUD. *Univ. of Western Ontario.*

4:15 **1616a.** Contracted kidney and hypertension in rabbits following injection of spermine into renal artery. CELIA WHITE TABOR,* LLEWELLYN L. ASHBURN* AND SANFORD M. ROSENTHAL. *Natl. Insts. of Health.*

Anti-Inflammatory Agents

THURSDAY, 1:15 P.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: W. M. Booker

1:15 **1617.** Prolonged gluco-corticoid activity measured by thymus gland regeneration and protection against lethal anaphylaxis in mice. M. T. SPOERLEIN AND S. MARGOLIN (intr. by GO LU). *Schering Corp.*

1:30 **1618.** Action of cortisone on the parenchymal cells of mouse liver. CLARA E. DUNN,* ALLAN D. BASS AND A. HOPE MCARDLE.* *Vanderbilt Univ.*

1:45 **1619.** Biphasic response in sodium excretion following 11,17-oxysteroid administration in the adrenalectomized rat. C. M. KAGAWA* AND C. G. VAN ARMAN. *G. D. Searle & Co.*

2:00 **1620.** Local anti-inflammatory activities of some 9α-halo derivatives of adrenal steroids. L. G. HERSHBERGER,* D. W. CALHOUN* AND V. A. DRILL. *G. D. Searle & Co.*

2:15 **1621.** Influence of antacids upon salicylate absorption and clinical effectiveness. ROBERT C. BATTERMAN, ARTHUR J. GROSSMAN* AND EVELYN SOMMER.* *New York Med. College.*

2:30 **1622.** Analgesic effectiveness of orally administered heptacyclazine in man. MAURICE GOLBEY,* PAUL LEIFER,* ARTHUR J. GROSSMAN* AND ROBERT C. BATTERMAN. *New York Med. College.*

2:45 **1623.** Activity of Ro 2-5383 in comparison with cortisone, sodium salicylate and phenylbutazone on suppression of inflammatory reactions. JOSEPH J. SELITTO* AND LOWELL O. RANDALL. *Hoffmann-La Roche Inc.*

3:00 **1624.** Anesthesia. XLVIX: Hypnosis with analgesic combinations. JOSEPH M. WHITE,* CLAIRE K. HEISSE* AND JOHN C. KRANTZ, JR. *Univ. of Maryland.*

3:15 **1625.** Analgesic activity and toxicity of Ro 2-7113. W. M. BENSON, D. J. CUNNINGHAM,* D. L. HANE* AND S. VAN WINKLE.* *Hoffmann-La Roche, Inc.*

3:30 **1626.** Use of ion exchange resins in removing exogenous toxins. ARTHUR J. PALLOTTA* AND THEODORE KOPPANYI. *Hazleton Labs., Falls Church, Va. and Georgetown Univ.*

3:45 **1627.** Influence of incubation of polysaccharide with serum on pyrogenicity. DAVID P. RALL, J. R. GASKINS AND MARGARET G. KELLY (intr. by CHARLES G. ZUBROD). *Natl. Cancer Inst.*

4:00 **1628.** Comparison of the diuretic activity of pyrogen with that of the urinary diuretic factor. J. MAXWELL LITTLE. *Bowman Gray School of Medicine.*

Psycho-Pharmacology

THURSDAY, 1:15 P.M.—RITZ-CARLTON, MEETING ROOM

Chairman: G. L. Cantoni

1:15 **1629.** Mechanism of serotonin-release by reserpine. PARKHURST A. SHORE.* ARVID CARLSSON* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

1:30 **1630.** Biochemical effect of reserpine on serotonin binding sites. R. KUNTZMAN,* SIDNEY UDENFRIEND, E. G. TOMICH,* B. BRODIE AND P. A. SHORE.* *Natl. Heart Inst.*

1:45 **1631.** Persistence of reserpine action after its disappearance from brain. SIDNEY M. HESS,* PARKHURST A. SHORE* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

2:00 **1632.** Preliminary studies on biosynthesis of 5-hydroxytryptamine (serotonin, enteramine). NICHOLAS J. GIARMAN. *Yale Univ.*

2:15 **1633.** Cardiovascular effects of serotonin in dogs premedicated with reserpine. GEORG CRONHEIM AND JAMES T. GOURZIS.* *Riker Labs.*

2:30 **1634.** Pharmacological effects of 5-hydroxytryptophan, the precursor of serotonin. DONALD F. BOGDANSKI, HERBERT WEISSBACH AND SIDNEY UDENFRIEND (intr. by B. B. BRODIE). *Natl. Heart Inst.*

2:45 **1635.** Increase in tissue serotonin by administration of its precursor, 5-hydroxytryptophan. SIDNEY UDENFRIEND, DONALD F. BOGDANSKI AND HERBERT WEISSBACH (intr. by B. B. BRODIE). *Natl. Heart Inst.*

3:00 **1636.** Possible role of serotonin on hypotensive and hypothermic actions of reserpine. Q. DEMING,* DONALD F. BOGDANSKI,* SIDNEY UDENFRIEND, P. A. SHORE* AND BERNARD B. BRODIE. *Natl. Heart Inst. and Goldwater Memorial Hosp.*

3:15 **1637.** Modifications of the pharmacology of reserpine and serotonin by iproniazid. MAX CHESSIN,* BERNARD DUBNICK,* EDWARD R. KRAMER* AND CHARLES C. SCOTT. *Warner-Chilcott Labs., Morris Plains, N. J.*

3:30 **1638.** Cumulative effect of small doses of reserpine on serotonin in man. BERNARD J. HAVERBACK,* PARKHURST A. SHORE,* EDWARD G. TOMICH* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

3:45 **1639.** In vitro effect of chlorpromazine on human cholinesterases. ERVIN G. ERDÖS,* FRANCIS F. FOLDES, NORA BAART* AND SYDNEY P. SHANOR.* *Mercy Hosp. and Univ. of Pittsburgh.*

Pharmacology Society Business Meeting

THURSDAY, 4:30 P.M.—RITZ-CARLTON, BALLROOM

Friday Morning, April 20, 9:00 a.m.

Gastrointestinal—Hormone Pharmacology

FRIDAY, 9:00 A.M.—RITZ-CARLTON, CARLTON ROOM

Chairman: P. L. MUNSON

9:00 **1640.** Comparison of osmotic effect of sodium sulfate and cyclamate (cyclohexylsulfamate) salts in the alimentary tract of the rat. KAO HWANG, R. WISEMAN,* D. T. ASHER* AND R. U. ROBINSON.* *Abbott Labs.*

9:15 **1641.** Isotope assay of intrinsic factor activity of human gastric juice after its fractionation by continuous paper-electrophoresis. LOUKIA STEPHANSON, MARILYN RICH, ROGER LAUGHTON AND GEORGE B. JERZY GLASS (intr. by LINN J. BOYD). *New York Med. College.*

9:30 **1642.** Effect of sodium polyanhydromannuronic acid sulfate on incidence of ulcers in the Shay rat. HARRY ROSEN,* PATRICIA TOWNSEND* AND JOSEPH SEIFTER. *Wyeth Inst. for Med. Research.*

9:45 **1643.** Absorption of drugs by the rat intestine. LEWIS S. SCHANKER,* C. ADRIAN M. HOGBEN,* PARKHURST A. SHORE* AND BERNARD B. BRODIE. *Natl. Heart Inst.*

10:00 **1644.** Thiocytic acid in the treatment of hepatic coma. FREDERICK STEIGMANN AND SHIBLI M. CANAHUATI.* *Cook County Hosp., Chicago.*

10:15 **1645.** Pharmacology of N^1-(n-butylcarbamyl) sulfanilamide. MARY A. ROOT AND R. C. ANDERSON. *Lilly Research Labs.*

10:30 **1646.** Effect of alloxan and ligation of the pancreatic duct on the turnover rate of zinc-65 in the rat. ROBERT J. MCISAAC (intr. by DOUGLAS S. RIGGS). *Univ. of Buffalo.*

10:45 **1647.** Degradation of synthetic polymers into potent estrogens. GEORGE P. CHILD. *Roselle Park, N. J.*

11:00 **1648.** Preparation and biological evaluation of fluorine derivatives of estradiol. WOLFRAM ZILLIG AND GERALD C. MUELLER (intr. by F. E. SHIDEMAN). *Univ. of Wisconsin.*

11:15 **1649.** Effect of diet on uterine weight response of rats and mice to orally administered stilbestrol. ERNEST J. UMBERGER,* JACK M. CURTIS AND GEORGE H. GASS.* *Food and Drug Admin.* (Biochem.)

11:30 **1650.** Temperature effects on radiocolloid uptake by the isolated rat liver. RALPH W. BRAUER, GEORGE F. LEONG,* ROY J. HOLLOWAY* AND GRANVILLE M. MOORE.* *U.S. Naval Radiological Defense Lab., San Francisco.*

Behavioral Pharmacology

FRIDAY, 9:00 A.M.—RITZ-CARLTON, MEETING ROOM

Chairman: W. H. Gantt

9:00 **1651.** Pharmacology of *d*-lysergic acid morpholide. JOHN H. GOGERTY* AND J. M. DILLE. *Univ. of Washington.*

9:15 **1652.** Effect of reserpine and chlorpromazine on positive reinforcement behavior in rats. K. F. KILLAM, J. OLDS AND P. BACH Y RITA (intr. by E. K. KILLAM). *Univ. of California at Los Angeles.*

9:30 **1653.** Individual differences in response to drugs. S. IRWIN, M. SLABOK* AND G. THOMAS.* *Schering Corp.*

9:45 **1654.** Influence of ataraxics on the mescaline-response of cats injected in the lateral ventricle of the brain. F. M. STURTEVANT* AND VICTOR A. DRILL. *G. D. Searle & Co.*

10:00 **1655.** Evaluation of drugs affecting the psyche by cat behavior studies. STATA NORTON AND E. J. DE BEER. *Wellcome Research Labs.*

10:15 **1656.** Acute tolerance to mescaline in the dog. MICHAEL J. HOSKO, JR.* AND RICHARD TISLOW. *Wyeth Inst. for Med. Research.*

10:30 **1657.** Tranquillizing effect of phenothiazines in cats and rabbits. ALBERT J. BEGANY,* JOSEPH SEIFTER, HARVEY H. PLESS,* RICHARD DEV. HUBER* AND WILLIAM F. BRUCE.* *Wyeth Inst. for Med. Research.*

10:45 **1658.** Influence of methyl-α-phenyl-2-piperidineacetate hydrochloride on the pharmacological actions of reserpine. A. J. PLUMMER, R. A. MAXWELL,* A. E. EARL* AND R. RUTLEDGE.* *Ciba Pharmaceutical Products Inc.*

11:00 **1659.** Prolongation and enhancement of the tranquillizing action of reserpine by glucose in the monkey. R. D. GAUCHAT* AND R. M. FEATHERSTONE. *State Univ. of Iowa.*

11:15 **1660.** Effects of meprobamate (Mil-

town), chlorpromazine and reserpine on behavior in the monkey. CHARLES D. HENDLEY, THOMAS E. LYNES* AND F. M. BERGER. *Wallace Labs., New Brunswick, N.J.*

11:30 **1661.** Effect of chlorpromazine, reserpine and 'Frenquel' on the LSD reaction. HARRIS ISBELL. *Natl. Inst. of Mental Health, Lexington, Ky.*

11:45 **1662.** Comparison of effects of chlorpromazine and secobarbital sodium on certain psychological tests. CONAN KORNETSKY (intr. by J. COCHIN). *Natl. Inst. of Mental Health.*

PAPERS READ BY TITLE

1663. Reversal of DL-penicillamine-caused growth inhibition of rats by DL-serine. H. VASKEN APOSHIAN AND BERNARD FRIEDLAND (intr. by B. H. ROBBINS). *Vanderbilt Univ.*

1664. Dibenzyline effect on hepatic ferritin metabolism in relation to protection against shock. SILVIO BAEZ,* S. G. SRIKANTIA,* IRIS FORBES* AND EPHRAIM SHORR (deceased). *Cornell Univ.*

1665. Effect of chlorpromazine on basal ganglia electrical activity. W. W. BAKER, E. G. SZEKELY* AND E. A. SPIEGEL.* *Temple Univ.*

1666. A mouse test for constipating action of narcotics: morphine, dihydromorphinone and 14-hydroxydihydromorphinone (Numorphan). HAROLD BLUMBERG AND STEVEN CARSON.* *Endo Products Inc.*

1667. Reversible nephrotoxic effects of biphenyl. ALBERT N. BOOTH,* ANTHONY M. AMBROSE AND FLOYD DEEDS. *Agric. Research Service, Albany, Calif.*

1668. Influence of some CNS excitants on the tonic extensor component of maximal seizures induced by pentamethylenetetrazol in mice. GRAHAM CHEN AND BARBARA BOHNER.* *Parke, Davis & Co.*

1669. Pharmacologic properties of N-2(3,4-methylenedioxyphenylisopropyl) - norepinephrine HCl (JB-251) and N-2(p-methoxyphenylisopropyl)-norepinephrine HCl (JB-245). JAMES Y. P. CHEN. *Marquette Univ.*

1670. Metabolism of D-4-amino-3-isoxazolidone (Cycloserine) in man. GAYLORD M. CONZELMAN, JR. (intr. by L. H. SCHMIDT). *Christ Hosp. Inst. of Med. Research, Cincinnati.*

1671. Effect of Enheptin on endocrine system and reproduction. ROBERT H. DREISBACH. *Stanford Univ.*

1672. Bufotenine effects in humans. H. D. FABING,* E. L. KROPA,* J. R. HAWKINS* AND C. D. LEAKE. *Ohio State Univ. and Battelle Memorial Inst.*

1673. Addictive potentialities of hexamethyleneimine. H. F. FRASER. *Natl. Inst. Mental Health, Lexington, Ky.*

1674. Effects of thyroxine and riboflavin on the transfer of energy. CHALMERS L. GEMMILL. *Univ. Of Virginia.*

1675. Modification of CNS drug action by anticholinesterases. VERNON A. GREEN* AND JOHN E. DAVIS. *Univ. of Texas.*

1676. Intra-cerebral injection of LSD-25 in the unanesthetized dog. THOMAS J. HALEY AND W. G. MCCORMICK.* *Univ. of California at Los Angeles.*

1677. Effect of whole body x-irradiation on the free amino acid content of rat plasma. DUANE W. HALLESY* AND JOHN DOULL. *USAF Radiation Lab., and Univ. of Chicago.*

1678. Concentrations of free morphine in brain after pretreatment with SKF 525A. EIKICHI HOSOYA (intr. by YOSHITO KOBAYASHI). *Keiogijuku Univ., Tokyo, Japan.*

1679. Amebacidal properties of N,N^1-dipiperonyl-5,11-diaminopentadecane dihydrochloride. ARSENY K. HRENOFF* AND HAMILTON H. ANDERSON. *Univ. of California, San Francisco.*

1680. Attempted addiction to nalorphine. HARRIS ISBELL. *Natl. Inst. of Mental Health, Lexington, Ky.*

1681. Toxicity of 1,2-dibromo-3-chloropropane. JIRO K. KODAMA AND MARY K. DUNLAP (intr. by CHARLES H. HINE). *Univ. of California, San Francisco.*

1682. Modification of method for production of cardiovascular and smooth muscle necrosis in the albino rat. D. LEHR, R. MILORA* AND C. MARTIN.* *New York Med. College.*

1683. Influence of newer oral cardiac diuretics. DAVID I. MACHT. *Sinai Hosp., Baltimore.*

1684. Effect of 6-mercaptopurine on nucleic acid synthesis. H. GEORGE MANDEL, JOSEPH K. INSCOE,* HARRIET M. MALING AND PAUL K. SMITH. *George Washington Univ.*

1685. Diisonicotinoylhydrazine (DiINAH) in urine of mice and guinea pigs following administration of isoniazid (INAH). R. W. MANTHEI (intr. by J. M. COON). *Jefferson Med. College.*

1686. Cardiac rates in digitalized cats with and without atropine. PAUL L. MCLAIN. *Univ. of Pittsburgh.*

1687. Effects of Pitocin, Pitressin and epinephrine on cortical activity in male rabbits. BRUNO MINZ, LEO GOLDSTEIN* AND JEANNE FUGAZZA.* *Sorbonne, Paris.*

1688. Metabolic conversion of ethyl *p*-nitrophenyl thionobenzene phosphonate (EPN) to an anticholinesterase agent. SHELDON D. MURPHY* AND KENNETH P. DUBOIS. *Univ. of Chicago.*

1689. Blood levels of hydantoins and phenobarbital in epileptics. G. L. PLAA,* C. H. HINE AND THOMAS L. NELSON.* *Univ. of California, San Francisco, and Sonoma State Hosp.*

1690. Pentobarbital distribution relationships in blood and tissues of dogs. GEORGE A. PORTER,* JOHN C. MISKO* AND NORMAN A. DAVID. *Univ. of Oregon and Multnomah County Coroner's Office, Portland.*

1691. Necrotizing effect of pathologic human sera on guinea pig skin. EVELYN F. REPPLINGER, I. R. SCHWARTZ, H. S. BOWMAN AND L. M. TOCANTINS (intr. by C. P. KRAATZ). *Jefferson Med. College.*

1692. Enhancement of urinary Cu excretion in a case of hepatolenticular degeneration by intramuscular edathamil calcium disodium ($Na_2CaEDTA$). FREDERIC RIEDERS. *Jefferson Med. College.*

1693. Effectiveness of protection with chlorpromazine administered (A) during shock and (B) in combination with varying supportive therapy. E. A. ROVENSTINE AND S. G. HERSHEY.* *New York Univ.*

1694. Cardiovascular effects of norepinephrine in dog. ROBERT L. RUSSELL AND JAMES E. RANDALL (intr. by B. A. WESTFALL). *Univ. of Missouri.*

1695. Effects of Pitressin-DCA treatment in hypophysectomized rats. E. SALGADO* AND D. M. GREEN. *Nepera Chemical Co.*

1696. New senna preparation in treatment of chronic constipation. FREDERICK STEIGMANN. *Cook County Hosp., Chicago.*

1697. Ethchlorvynol ('Placidyl') compared with secobarbital and pentobarbital for EEG sedation. J. E. P. TOMAN AND E. K. CHRISTENSEN.* *Chicago Med. School and Mt. Sinai Hosp.*

1698. Resting potential and action potential of frog heart as influenced by calcium lack. FREDERICK WARE AND A. L. BENNETT (intr. by A. R. MCINTYRE). *Univ. of Nebraska.*

1699. Effects of chlorpromazine on phospholipid turnover in brain. ARTHUR W. WASE, JENS CHRISTENSEN AND EDWARD POLLEY (intr. by B. CALESNICK). *Hahnemann Med. College.*

1700. Effects of digitalis on glycogen fractions of the heart. B. A. WESTFALL AND F. A. PURDY.* *Univ. of Missouri.*

1701. Cardiac conduction in the dog during anesthesia with Fluoromar. JOSEPH M. WHITE, JR., F. NELL NATIONS AND L. STANTON STAVNEY (intr. by LUCIEN E. MORRIS). *Univ. of Washington.*

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY

Forty-first Annual Meeting

ATLANTIC CITY, APRIL 16–20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Tuesday Morning, April 17, 9:00 a.m.

Tissue and Organ Transplantation Cell Studies: Reticulo-endothelial System

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 11

Chairman: William B. Wartman

9:00 **1702.** Postparabiotic disappearance of classical homologous tissue reactions to musculofascial cross-transplants in rabbits. RICHARD ANDERSEN,* CLARENCE MONROE,* DOROTHY MADDEN* AND GEORGE HASS. *Presbyterian Hosp., Chicago.*

9:15 **1703.** Use of fresh and frozen adult and embryonic skin homografts in rabbit and man. HELENE WALLACE TOOLAN (intr. by CORNELIUS P. RHOADS). *Brooke Army Hosp., Fort Sam Houston.*

9:30 **1704.** Successful cross-species bone grafting accomplished by removal of donor organic matrix. LLOYD A. HURLEY AND FRED L. LOSEE (intr. by ERNEST W. GOODPASTURE). *Naval Med. Research Inst.*

9:45 **1705.** Kidney homotransplantation in dogs. HOWARD GOODMAN,* JEROME KAY,* ROBERT GAERTNER* AND JAMES BAXTER. *Natl. Heart Inst.* (Pharmacol.)

10:00 **1706.** Is the dog a suitable animal for study of revascularization of the heart? STEPHEN MADDOCK. *Boston City Hosp.*

10:15 **1707.** Standardization of isolated myofibril contractile systems in vitro. ARNOLD BROWN,* ALBERT ARAS* AND GEORGE HASS. *Presbyterian Hosp., Chicago.*

10:30 **1708.** Rapid production of plasmacytoses in rabbit lymph nodes. J. W. REBUCK, A. H. VELDHUIS* AND L. A. SWINEHART.* *Henry Ford Hosp., Detroit.*

10:45 **1709.** Factors regulating lymph formation. J. L. BOLLMAN. *Mayo Clinic.*

Infectious Agents

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 13

Chairman: Tom R. Hamilton

9:00 **1710.** Effect of hypothermia on induced bacteremia. E. J. FEDOR,* E. R. FISHER, B. FISHER* AND J. V. DATTILO.* *Univ. of Pittsburgh.*

9:15 **1711.** Survival of bacteria in phagocytes from normal and X-irradiated mice. ERIC L. NELSON,* JOAN R. BECKER* AND C. PHILIP MILLER. *Univ. of Chicago.*

9:30 **1712.** Energy-yielding reactions of Treponema pallidum as studied by motility inhibition. JAMES D. CASE AND J. WALTER CLARK, JR. (intr. by HAROLD J. MAGNUSON). *Venereal Disease Exptl. Lab., Chapel Hill.*

9:45 **1713.** Citric acid cycle enzymes in normal and syphilitic rabbit tissues. HENRY TAUBER. *Venereal Disease Exptl. Lab., and School of Public Health, Univ. of North Carolina, Chapel Hill.* (Biochem.)

10:00 **1714.** Dual mechanism of pathogenesis in infections with cyst-producing microorganisms. J. K. FRENKEL. *Univ. of Kansas School of Medicine.*

10:15 **1715.** Alloxan diabetes and cortisone as modifying factors in experimental mucormyco-

sis (Rhizopus infection). ROGER D. BAKER, R. A. SCHOFIELD,* T. DAVID ELDER* AND ANGELO P. SPOTO, JR.* *Duke Univ. School of Medicine and VA Hosp., Durham.*

10:30 **1716.** Production of endocarditis and glomerulonephritis by single bacterial injections in dogs with aortic insufficiency. BENJAMIN HIGHMAN, JOSEPH ROSHE* AND PAUL D. ALTLAND.* *Natl. Inst. of Arthritis and Metabolic Diseases and Clinic of Surgery.*

10:45 **1717.** Effect of Hufnagel valve on susceptibility of dogs to endocarditis. JOSEPH ROSHE,* BENJAMIN HIGHMAN AND PAUL D. ALTLAND.* *Clinic of Surgery, Natl. Heart Inst. and Natl. Inst. of Arthritis and Metabolic Diseases.*

Tuesday Afternoon, April 17, 1:15 p.m.

Viruses

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 13

Chairman: Douglas H. Sprunt

1:15 **1718.** Study of poliomyelitis virus by fluorescent antibody. SONJA M. BUCKLEY (intr. by GILBERT DALLDORF). *New York State Department of Health.*

1:30 **1719.** Growth of monkey kidney cells in diffusion chambers in mice: effect of poliomyelitis virus. ALLEN B. ESCHENBRENNER AND ROBERT D. FRANCIS.* *Communicable Disease Ctr., Public Health Service, Montgomery, Ala.*

1:45 **1720.** Sterilization of plasma using combinations of ultraviolet irradiation and beta-propiolactone. FRANK W. HARTMAN, GERALD A. LEGRIPPO* AND ANNETTE R. KELLY.* *Henry Ford Hosp., Detroit.*

2:00 **1721.** Development of inclusions and growth cycle. CHARLES C. RANDALL AND E. C. BRACKEN.* *Vanderbilt Univ. School of Medicine.*

2:15 **1722.** Weight, protein and nucleic acid determinations of isolated nuclei. E. C. BRACKEN* AND CHARLES C. RANDALL. *Vanderbilt Univ. School of Medicine.*

2:30 **1723.** Hemoglobin and derivatives as antibacterial factors in serum. DON C. WOOD AND JOE ONO (intr. by RUSSELL S. JONES). *Fort Douglas VA Hosp., and Univ. of Utah College of Medicine.*

2:45 **1724.** Experimental allergic encephalomyelitic activity in glycoprotein fraction of bovine spinal cord. MARIAN W. KIES, ELIZABETH ROBOZ* AND ELLSWORTH C. ALVORD.* *Natl. Inst. of Mental Health, Georgetown Univ. Med. School, and Baylor Univ. Med. School.* (Biochem.)

3:00 **1725.** Adrenal incorporation of C^{14} from labeled bacterial polysaccharide: influence of species, route of injection and dosage. RUSSELL S. JONES AND YOLANDE CARTER.* *Univ. of Utah College of Medicine.*

3:15 **1726.** Adrenal incorporation of C^{14} from labeled bacterial polysaccharide: effect of cortisone and ACTH. YOLANDE CARTER* AND RUSSELL S. JONES. *Univ. of Utah College of Medicine.*

Pathology Society Business Meeting

TUESDAY, 3:45 P.M.—CONVENTION HALL, ROOM 13

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONVENTION HALL, BALLROOM

Program on page 628

Wednesday, Morning, April 18, 9:00 a.m.

Endocrine: Metabolism and Morphology

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 11

Chairman: Emory D. Warner

9:00 **1727.** Comparison of ability of scrobutic and control guinea pigs to metabolize large doses of administered cortisol. E. M. NADEL AND S. BURSTEIN.* *Natl. Insts. of Health, Bethesda, and Worcester Fndn. for Exptl. Biology, Shrewsbury.*

9:15 **1728.** Regulation of cytoplasmic ribonucleic acid and protein synthesis in endocrine glands by hormones of anterior pituitary. SILVIO FIALA,* EDITH E. SPROUL AND ANNA FIALA.* *Columbia Univ. College of Physicians and Surgeons, Francis Delafield Hosp.*

9:30 **1729.** Effect of estrogen on thyroidal and renal clearance of I^{131}. JOSEPH D. FELDMAN. *Univ. of Pittsburgh School of Medicine.*

9:45 **1730.** Bioassay of human hypophysis for thyrotropic hormone correlated with cytology and hormone therapy. AGNES B. RUSSFIELD AND SHOLEM POSTEL (intr. by BENJAMIN CASTLEMAN). *Massachusetts General Hosp., Boston.*

10:00 **1731.** Comparative pathology of androblastoma. NANCY WARNER,* NATHAN B. FRIEDMAN AND FRANCIS MASIN.* *Cedars of Lebanon Hosp., and Univ. of Southern California, Los Angeles.*

10:15 **1732.** Endocrine background of chronic cystic mastitis and adenofibrosis. SHELDON C. SOMMERS AND ANDRE MARTEL.* *Massachusetts Memorial Hosps., Boston.*

10:30 **1733.** Reserpine suppression of murine adrenal and reproductive responses to population density. JOHN J. CHRISTIAN. *Naval Med. Research Inst., and Johns Hopkins School of Hygiene and Public Health.*

10:45 **1734.** Effect of cortisone, stress and sulfhydryl precursors on thiourea pleural effusion. JULIA B. MACKENZIE AND COSMO G. MACKENZIE. *Univ. of Colorado School of Medicine.* (Biochem.)

Cardiovascular Disease: Hypertension

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 13

Chairman: Robert W. Wissler

9:00 **1735.** NACL intake as related to human hypertension. L. K. DAHL AND R. A. LOVE.* *Brookhaven Natl. Lab.*

9:15 **1736.** Agents influencing isoproterenol-induced hypotension. JEAN SICÉ AND JULES M. SELETZ (intr. by I. DAVIDSOHN). *Chicago Med. School.*

9:30 **1737.** Lipid concentration of human adrenals with particular reference to hypertensive disease. CORNELIA HOCH-LIGETI, KAREN IRVINE* AND JAMES E. IRVINE.* *Univ. of Virginia.*

9:45 **1738.** Factors influencing development of experimental hypertensive vascular disease during adrenal regeneration in the rat. FLOYD R. SKELTON AND JAMES GUILLEBEAU.* *Med. College of Georgia.*

10:00 **1739.** Withdrawn.

10:15 **1740.** Distribution and localization of K in early myocardial ischemic injury. ROBERT B. JENNINGS,* J. RICHARD CROUT* AND WILLIAM B. WARTMAN. *Northwestern Univ. Med. School.*

10:30 **1741.** Eclampsia in rats produced by controlled diet. F. W. STAMLER (intr. by E. D. WARNER). *Univ. of Iowa.*

10:45 **1742.** Etiology of cardiovascular disease in choline deficiency. GEORGE F. WILGRAM AND J. BLUMENSTEIN (intr. by E. E. F. T. BAER). *Univ. of Toronto.* (Biochem.)

11:00 **1743.** Morphologic alterations and dissecting aneurysms of aorta in cortisone-treated hamsters. C. HAROLD STEFFEE AND KATHERINE C. SNELL.* *Natl. Cancer Inst.*

11:15 **1744.** Electron microscope study of experimental necrotizing arteritis in the dog. JACK C. GAER,* HENRY C. MCGILL, JR. AND RUSSELL L. HOLMAN. *Louisiana State Univ. School of Medicine, and Charity Hosp., New Orleans.*

11:30 **1745.** Ultraviolet absorption of aortic elastic tissue. JOHN P. AYER AND KATHRYN

HALEY (intr. by SHIELDS WARREN). *New England Deaconess Hosp., Boston.*

11:45 **1746.** Inhibition of elastase. KATHLEEN K. WINTER AND SAM FRANKEL (intr. by H. T. BLUMENTHAL). *Jewish Hosp. Research Fndn., St. Louis.*

Wednesday Afternoon, April 18, 1:15 p.m.

Tumors

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 11

Chairman: Jacob Furth

1:15 **1747.** Growth and serial transfer of mouse leukemia in cheek pouch of golden hamster. ALFRED H. HANDLER (intr. by SIDNEY FARBER). *Children's Cancer Research Fndn., Boston.*

1:30 **1748.** Inhibition of myeloid leukemia induction in RF mice by partial shielding during irradiation. ARTHUR C. UPTON, JACOB FURTH AND ESCHOL S. LEDFORD.* *Oak Ridge Natl. Lab., and Children's Cancer Research Fndn., Boston.*

1:45 **1749.** Relation of lymphoma induction to cortical differentiation in thymic grafts in irradiated C57BL mice. WM. H. CARNES AND HENRY S. KAPLAN. *Stanford Univ.*

2:00 **1750.** Ability of spleen to protect against leukemia in mice. ERIC L. SIMMONS (intr. by L. O. JACOBSON). *Argonne Cancer Research Hosp., Univ. of Chicago.*

2:15 **1751.** Distribution and localization of tissue antigens as determined with fluorescent antibody to rat lymphosarcoma. WILBUR FISKE NOYES AND MAURICE M. RAPPORT (intr. by C. P. RHOADS). *Sloan-Kettering Inst. for Cancer Research.*

2:30 **1752.** Differential effects on cellular division and differentiation. NATHAN B. FRIEDMAN, ROBERT E. HOYT* AND EILEEN DRUTZ.* *Cedars of Lebanon Hosp., and Univ. of Southern California.*

2:45 **1753.** Desoxyribose nucleic acid (DNA) containing cytoplasmic inclusions of human rectal polypoid tumors. CECILIE LEUCHTENBERGER. *Western Reserve Univ.*

3:00 **1754.** Experimental carcinoma of the cervix. E. VON HAAM AND D. G. SCARPELLI.* *Ohio State Univ.*

Kidney: Nephotoxic Nephritis, Antigens and Antibodies

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 13

Chairman: Frank J. Dixon, Jr.

1:15 **1755.** Nephrotoxic serum nephritis: specificity of the antigen. JAMES H. BAXTER AND HOWARD C. GOODMAN.* *Natl. Heart Inst.* (Pharmacol.)

1:30 **1756.** Antibody localization in nephrotoxic nephritis. LOUIS G. ORTEGA* AND ROBERT C. MELLORS. *Sloan-Kettering Inst. for Cancer Research.*

1:45 **1757.** Tissue-localizing gamma globulins in pathogenesis of human glomerulonephritis. ROBERT C. MELLORS AND LOUIS G. ORTEGA.* *Sloan-Kettering Inst. for Cancer Research, and Memorial Ctr. for Cancer and Allied Diseases.*

2:00 **1758.** Kidney localizing proteins derived from normal tissues. WILLIAM F. BALE, IRVING L. SPAR AND RUTH L. GOODLAND (intr. by GEORGE H. WHIPPLE). *Univ. of Rochester School of Medicine.*

2:15 **1759.** Identity of renal lesion in rats treated with antikidney serum. W. E. EHRICH, G. P. SHARMA,* R. A. RAJOU,* N. BHAMARAPRAVATI* AND J. SEIFTER.* *Univ. of Pennsylvania Grad. School of Medicine.*

2:30 **1760.** Histochemical changes in rat kidney induced by K deficiency. JOHN M. CRAIG AND ROBERT SCHWARTZ.* *Children's Cancer Research Fndn., Children's Med. Ctr., and Harvard Med. School.*

2:45 **1761.** Enzymatic staining reactions in kidney following interruption of renal circulation. M. WACHSTEIN AND E. MEISEL.* *St. Catherine's Hosp., Brooklyn.*

3:00 **1762.** Reactions in dogs due to hemodialysis with the Skeggs-Leonards artificial kidney. F. T. MAHER,* J. V. YOUNG,* L. C. WATKINS* AND J. L. BOLLMAN. *Mayo Clinic.*

Pathology Society Dinner

WEDNESDAY, 6:30 P.M.—HOTEL MADISON, SOLARIUM

Thursday Morning, April 19, 9:00 a.m.

Idiopathic Disease, Thermal Injury, Tissue Response and Repair

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM 11

Chairman: Frank W. Hartman

9:00 **1763.** Spontaneous heart disease of DBA/2Jax mice. GERALD R. CLEMENTS (intr. by W. B. WARTMAN). *Armour Labs.*

9:15 **1764.** Idiopathic necrosis of bone in laboratory mice. LEON SOKOLOFF AND ROBERT T. HABERMANN (intr. by J. H. BRAGDON). *Natl. Inst. of Arthritis and Metabolic Diseases.*

9:30 **1765.** Importance of burn area vs. burn depth in systemic responses to experimental flash burns. MACKENSIE WALSER AND LEONARD J. BODENLOS (intr. by G. BRECHER). *Naval Med. Research Inst.*

9:45 **1766.** Substances released from the skin following thermal injury: histamine and proteins. SOL ROY ROSENTHAL, CHARLES SAMET,* RICHARD J. WINZLER* AND SELWYN SHKOLNIK.* *Univ. of Illinois College of Medicine.*

10:00 **1767.** Influence of beta-aminopropionitrile on development of croton oil pouch. JOHN E. MIELKE,* JOSEPH J. LALICH AND D. MURRAY ANGEVINE. *Univ. of Wisconsin Med. School.*

10:15 **1768.** Silicosis: topographic relation of silica to pulmonary tissue. PAUL GROSS, MARIAN L. WESTRICK* AND JAMES M. MCNERNEY.* *Industrial Hygiene Fndn., Mellon Inst.*

10:30 **1769.** Inflammatory response to silica after cessation of cortisone therapy. WALLACE H. CLARK, JR., LELAND C. EDMONDS AND CLIFTON L. HESTER (intr. by CHARLES E. DUNLAP). *Tulane Univ. Med. School.*

10:45 **1770.** Sources and electrophoretic properties of normal synovial fluids. WARD PIGMAN, DAVID PLATT,* FRANCIS PATTON* AND HOWARD HOLLEY.* *Univ. of Alabama Med. Ctr.* (Biochem.)

Liver and Biliary System: Cirrhosis, Protein Metabolism

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM 13

Chairman: W. Stanley Hartroft

9:00 **1771.** Effects of x-radiation and cortisone on serum proteins in mice. ALVAR A. WERDER, CREIGHTON A. HARDIN AND PERRY MORGAN (intr. by TOM R. HAMILTON). *Univ. Kansas Med. Ctr.*

9:15 **1772.** Serum protein changes in postnecrotic cirrhosis produced by ethionine. HANS POPPER, ALVIN DUBIN,* DANIEL S. KUSHNER,* GEOFFREY KENT,* CLARA BRUCE* AND ELAINE HERZOG.* *Cook County Hosp., Chicago.*

9:30 **1773.** Aldosterone content of urine and abdominal fluid in patients with cirrhosis of the liver. INGE DYRENFURTH,* C. H. STACEY* AND ELEANOR H. VENNING. *Royal Victoria Hosp., Montreal.* (Biochem.)

9:45 **1774.** Periportal stainable lipid in livers of insulin-injected rats. W. STANLEY HARTROFT AND JOHN S. MEYER.* *Washington Univ. Med. School, St. Louis.*

10:00 **1775.** Lipide analysis of cellular fractions in liver necrosis. W. E. CORNATZER AND DUANE G. GALLO.* *Univ. of North Dakota Med. School.* (Biochem.)

10:15 **1776.** Hepatic cholesterol synthesis: its depression by dietary cholesterol and subsequent recovery on cholesterol-free diet. C. BRUCE TAYLOR, LAVERNE NELSON,* MARJORIE STUMPE,* GEORGE COX* AND RAY TAMURA.* *Presbyterian Hosp., Chicago.*

10:30 **1777.** Sterol metabolism in the rabbit. E. H. MOSBACH, E. HALPERN AND J. BRUNDER (intr. by M. BEVANS). *Goldwater Memorial Hosp., and Columbia Univ.*

10:45 **1778.** Production of concrements and biliary tract lesions in rabbits fed 3B-cholestanol. M. BEVANS, E. H. MOSBACH* AND R. KAPLAN.* *Goldwater Memorial Hosp., and Columbia Univ.*

11:00 **1779.** Hepatic changes following ligation of common bile duct in the rat. WILLIAM E. JAQUES AND A. JAMES MCADAMS.* *Louisiana State Univ. School of Medicine, and Harvard Med. School.*

11:15 **1780.** Changes in bile and liver following prolonged periods of bile duct obstruction. HARRY M. VARS AND G. CASTIGLIONI.* *Univ. of Pennsylvania School of Medicine.* (Biochem.)

11:30 **1781.** Mechanism of increased iron absorption in Tween 20-fed hamsters. HIDEO D. MORI,* ROBERT W. WISSLER, PATRICIA BARKER* AND DANUTE S. JURAS.* *Univ. of Chicago, and Argonne Cancer Research Hosp.*

11:45 **1782.** Bile acid content of serum and urine in hepatic disease. D. RUDMAN* AND F. E. KENDALL. *Goldwater Memorial Hosp. and Columbia Univ.* (Immunol.)

Thursday Afternoon, April 19, 1:15 p.m.

Diet: Vitamins and Enzymes

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM 11

Chairman: D. Murray Angevine

1:15 **1783.** Pathological changes in dogs and rats from feeding of coumarin. ROBERT E. ZWICKEY* AND ARTHUR A. NELSON. *Food and Drug Admin.*

1:30 **1784.** Occurrence of multiple fractures in suckling rats injected with beta-aminopropionitrile (lathyrus factor). JACKSON J. CLEMMONS* AND D. MURRAY ANGEVINE. *Univ. of Wisconsin Med. School.*

1:45 **1785.** Comparison of two methods for intrinsic factor evaluation. LEON ELLENBOGEN,* WILLIAM L. WILLIAMS, S. FRED RABINER* AND HERBERT C. LIGHTMAN.* *American Cyanamid Co., Pearl River, and State Univ. of New York, New York City.* (Biochem.)

2:00 **1786.** Evaluation of intrinsic factor in pernicious anemia by means of cobalt^{60}-vitamin B_{12}. FRANCES E. BULL,* DONALD C. CAMPBELL* AND CHARLES A. OWEN, JR. *Mayo Fndn. and Mayo Clinic.*

2:15 **1787.** Determination and application of serum vitamin B_{12} binding capacity. ROBERT L. DAVIS,* ROBERT C. DUVALL* AND BACON F. CHOW. *VA Hosp., and School of Hygiene and Public Health, Johns Hopkins Univ.* (Biochem.)

2:30 **1788.** Effect of aminopterin and omega-methyl-pantethenate combined on morphology and respiration of intestinal mucosa. THOMAS J. GILL,* NORMAN ZAMCHECK, JOSEPH J. VITALE* AND D. M. HEGSTED. *Harvard School of Public Health, Mallory Inst. of Pathology, and Boston Univ. School of Medicine.*

2:45 **1789.** Effect of glycocyamine and betaine on high energy phosphates of muscle in multiple sclerosis. RUTH D. PETERSON AND JOHN H. ALDES.* *Univ. of Oregon Med. School, Portland, and Cedars of Lebanon Hosp., Los Angeles.* (Biochem.)

3:00 **1790.** Influence of serum inhibitor on antiphlogistic action of trypsin. J. MORTON BEILER,* ROBERT R. BRENDEL* AND GUSTAV J. MARTIN. *Natl. Drug Co., Philadelphia.* (Biochem.)

3:15 **1791.** Free nucleotides and related compounds of normal and infarcted human placenta. C. R. HOOVER,* A. E. WILHELMI AND R. A. BARTHOLOMEW.* *Emory Univ.* (Biochem.)

3:30 **1792.** Enzyme in mast cells with some properties resembling chymotrypsin. EARL P. BENDITT, *Univ. of Chicago, and LaRabida Jackson Park Sanatorium.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

PAPERS READ BY TITLE

1793. Effects of graded doses of whole-body X-irradiation on mast cells in the rat mesentery. FRANK P. CONTE,* GEORGE S. MELVILL, JR.* AND ARTHUR C. UPTON. *Oak Ridge Natl. Lab.*

1794. Attenuation by histamine of lethal irradiation effect in mice and its potentiation by Benadryl. HORACE GOLDIE, GADSON J. TARLETON,* JOSEPH G. GORDON* AND GUSTAVEOUS L. GEIGER.* *Meharry Med. College.* (Immunol.)

1795. Osmotic control of cytochrome oxidase and succinic dehydrogenase activity in muscle mitochondria. JOHN W. HARMAN. *St. Kevin's Hosps., Dublin, Ireland.*

1796. Interferometric dry mass determination of isolated liver nuclei from fasting and fed mice. SUSUMU ITO (intr. by CECILIE LEUCHTENBERGER). *Western Reserve Univ.*

1797. Nutritional properties of molecularly distilled fractions of autoxidized fats. H. KAUNITZ, C. A. SLANETZ,* R. E. JOHNSON,* H. B. KNIGHT,* D. H. SAUNDERS* AND DANIEL SWERN.* *Columbia Univ., New York, and and Eastern Regional Research Lab., Philadelphia.*

1797a. Postnephrectomy hypertension of dog: potentiation by dietary protein. E. E. MUIRHEAD. *Univ. of Texas Southwestern Med. School.*

1798. Rapid test for thymolytic activity of corticoids in nestling rats. E. M. NADEL AND A. G. HILGAR.* *Natl. Cancer Inst.*

1799. Effects of anterior hypophysis on osteoarthritis in underfed mice. MARTIN SILBERBERG AND RUTH SILBERBERG. *City Hosp. Div., and Washington Univ., St. Louis.*

AMERICAN INSTITUTE OF NUTRITION

Twentieth Annual Meeting

ATLANTIC CITY, APRIL 16-20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address see abstract, Part I

Monday Afternoon, April 16, 1:15 p.m.

General Nutrition

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM A

Chairman: O. L. Kline

1:15 **1800.** Weight maintenance requirements of rats fed high protein, fat or carbohydrate diets. CHARLES A. SLANETZ,* HANS KAUNITZ, RUTH ELLEN JOHNSON* AND JACQUES GUILMAIN.* *Columbia Univ.* (Pathol.)

1:30 **1801.** Growth responses of spaced-fed rats. J. S. FINDLAYSON* AND C. A. BAUMANN. *Univ. of Wisconsin.*

1:45 **1802.** Goldthioglucose obesity and the regulation of food intake in mice. JEAN MAYER, NORMAN B. MARSHALL* AND JAMES ANLIKER.* *Harvard Univ.*

2:00 **1803.** Blood glucose responses to the energy-yielding nutrients. J. H. FRYER (intr. by L. A. MAYNARD). *Cornell Univ.*

2:15 **1804.** Absorption of fructose from the intestinal tract of the rat. NICHOLAS M. PAPADOPOULOS* AND JOSEPH H. ROE. *George Washington Univ. School of Medicine.*

2:30 **1805.** Comparison of the metabolic energy contributions of foods by rat growth under conditions of energy restriction. E. E. RICE, W. D. WARNER,* P. E. MONE* AND C. E. POLING.* *Swift and Co.*

2:45 **1806.** Estimation of metabolizable energy of cereal products from their chemical composition. K. J. CARPENTER AND K. M. CLEGG (intr. by D. M. HEGSTED). *Rowett Research Inst., Aberdeen, Scotland.*

3:00 **1807.** Influence of diethylstilbestrol on growth and reproduction of mink. H. F. TRAVIS,* C. F. BASSETT,* R. G. WARNER* AND J. K. LOOSLI. *U. S. Fur Animal Exper. Station, Ithaca, and Cornell Univ.*

3:15 **1808.** A water-soluble synthetic diet. SANFORD M. BIRNBAUM, MILTON WINITZ,* ROBIN H. BROOKS AND JESSE P. GREENSTEIN. *U.S. Dept. of Health, Education and Welfare.* (Biochem.)

3:30 **1809.** Wholesomeness of a γ-irradiated diet fed to rats. C. H. BURNS,* L. E. BROWNELL* AND H. C. ECKSTEIN. *Fission Products Lab. and Univ. of Michigan.* (Biochem.)

3:45 **1810.** Factors controlling the excretory pattern of potassium (K-42) and cesium (Cs-134) in rats. F. R. MRAZ* AND H. PATRICK. *UT-AEC Agric. Research Program, Oak Ridge.*

Niacin, Tryptophan and Pantothenic Acid

MONDAY, 1:15 P.M.—CONVENTION HALL, ARENA STAGE

Chairman: W. H. Sebrell, Jr.

1:15 **1811.** Metabolism of radioactive nicotinamide in the chick. M. L. WU CHANG* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

1:30 **1812.** Quantitative utilization of tryptophan from foods by the rat. C. H. LUSHBOUGH,* THELMA PORTER AND B. S. SCHWEIGERT. *American Meat Inst. Fndn. and Univ. of Chicago.*

1:45 **1813.** Niacin-tryptophan requirements of man. M. K. HORWITT. *Univ. of Illinois College of Medicine and Elgin State Hosp.*

2:00 **1814.** Efficiency of tryptophan as a niacin precursor. GRACE A. GOLDSMITH, O. NEAL MILLER AND WALTER G. UNGLAUB.* *Tulane Univ.*

2:15 **1815.** Relative roles of niacin and tryptophan in maintaining pyridine nucleotides, nitrogen balance, and growth. MARILYN CHALOUPKA,* J. N. WILLIAMS, JR.* AND MAY S. REYNOLDS. *Univ. of Wisconsin.*

2:30 **1816.** Supplemental value of raw, lime treated, and boiled corn when added to a niacin-free low casein diet. WILLIAM N. PEARSON, J. SALVADOR VALENZUELA AND SARAH JANE STEMPFEL (intr. by WILLIAM J. DARBY). *Vanderbilt Univ. School of Medicine.*

2:45 **1817.** Multiple congenital abnormalities resulting from pantothenic acid deficiency in the rat. HERBERT M. EVANS,* MARJORIE M. NELSON, CATHERINE D. C. BAIRD* AND HOWARD V. WRIGHT.* *Univ. of California.*

3:00 **1818.** Need for pantothenic acid and its relation to ascorbic acid in nutrition of the guinea pig. CECELIA PUDELKEWICZ* AND CHARLOTTE RODERUCK. *Iowa State College.*

3:15 **1819.** Pantothenic acid sparing action of dietary ascorbic acid in antibody production. J. PRUZANSKY* AND A. E. AXELROD. *Univ. of Pittsburgh School of Medicine.*

3:30 **1820.** Pantothenic acid deficiency and hypophysectomy. JOSEPH J. BARBORIAK (intr. by G. R. COWGILL). *Yale Univ.*

3:45 **1821.** Effect of coenzyme A precursors upon hepatic coenzyme A levels in pantothenic acid-deficient and organic sulfur-deficient rats. CHING-SING YANG,* BEVERLY STEWART* AND ROBERT E. OLSON. *Univ. of Pittsburgh.*

Tuesday Morning, April 17, 9:00 a.m.

50th Anniversary Biochemistry Symposium

CONVENTION HALL, BALLROOM—PROGRAM ON PAGE 678

Tuesday Afternoon, April 17, 1:15 p.m.

B-Vitamins

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM A

Chairman: Thomas H. Jukes

1:15 **1822.** Vitamin B_{12} deficiency and fasting on distribution of P^{32} in newborn rats. B. L. O'DELL, J. H. BRUEMMER* AND A. G. HOGAN. *Univ. of Missouri.*

1:30 **1823.** Absorption of vitamin B_{12} in hyper- and hypothyroid rat. KUNIO OKUDA,* SANFORD STEELMAN* AND BACON F. CHOW. *Johns Hopkins Univ., and Armour Research Lab.*

1:45 **1824.** Effect of crystalline vitamin B_{12} and of a crystalline grasshopper pigment (GHP) on experimental anemia in mice. L. E. BURGESS, S. S. CLARK* AND D. T. ROLFE. *Meharry Medical College.* (Physiol.)

2:00 **1825.** Relationships of vitamin B_{12}, methionine and choline to metabolism of B vitamins in hepatic tissues. CECILE HOOVER EDWARDS AND CHARLOTTE E. OUTLAND (intr. by PEARL P. SWANSON). *Tuskegee Inst.*

2:15 **1826.** Deficiencies of certain B vitamins and absorption of vitamin B_{12}. JENG M. HSU,* BACON F. CHOW, KUNIO OKUDA* AND ERNESTINE B. MCCOLLUM. *Johns Hopkins Univ.*

2:30 **1827.** Effect of 36-hour period of pteroylglutamic acid (PGA) deficiency on fetal development in the rat. MARJORIE M. NELSON, HOWARD V. WRIGHT,* CATHERINE D. C. BAIRD* AND HERBERT M. EVANS.* *Univ. of California, Berkeley.*

2:45 **1828.** Metabolic disposal of folic acid. JAMES S. DINNING, JOHN T. SIME* AND PAUL L. DAY. *Univ. of Arkansas School of Medicine.*

3:00 **1829.** Vitamin B_6 deficiency in rabbits. E. L. HOVE AND J. F. HERNDON.* *Alabama Polytechnic Inst.*

3:15 **1830.** Relationship of vitamin B_6 to serum protein and nonprotein nitrogen in the rat during pregnancy. MARGARET L. ROSS AND RUTH L. PIKE (intr. by MARY L. DODDS). *Pennsylvania State Univ.*

3:30 **1831.** Effect of cocarboxylase on the incorporation of pyruvate into acids of tricarboxylic acid cycle by normal and diabetic rat liver. CHARLES E. FROHMAN (intr. by JAMES M. ORTEN). *Wayne Univ. College of Medicine.*

3:45 **1832.** Riboflavin deficiency in rhesus monkey. LOUIS D. GREENBERG AND JAMES F. RINEHART* (deceased). *Univ. of California School of Medicine, San Francisco.* (Biochem.)

Vitamin A and Antibiotics

TUESDAY, 1:15 P.M.—CONVENTION HALL, ARENA STAGE

Chairman: Carl A. Baumann

1:15 **1833.** Dietary protein and carotene utilization. LOTTE ARNRICH AND DOROTHY J. PEDERSON (intr. by AGNES FAY MORGAN). *Univ. of California, Berkeley.* (Biochem.)

1:30 **1834.** Provitamin A activity of β-carotene-free nonsaponifiable material from alfalfa. R. F. KRAUSE. *West Virginia Univ. School of Medicine.* (Biochem.)

1:45 **1835.** In vitro hydrolysis and esterification of vitamin A. EDWARD G. HIGH, HENRY B. BRIGHT AND J. RONALD POWELL (intr. by HARRY G. DAY). *Meharry Med. College.*

2:00 **1836.** Acetin fats and vitamin A metabolism. J. C. ALEXANDER* AND F. H. MATTSON. *Proctor and Gamble Co.*

2:15 **1837.** Vitamin A and carotene serum levels in depleted chicks and children in

relation to vitamin A and carotene intake. ROBERT L. SQUIBB, J. EDGAR BRAHAM,* GUILLERMO ARROYAVE* AND NEVIN S. SCRIMSHAW. *Instituto Agropecuario Nacional and Instituto de Nutricion de Centro America y Panama, Guatemala.*

2:30 **1838.** Comparative effects of DPPD and other antioxidants on hypervitaminosis A in the rat. H. J. DEUEL, JR., R. P. COX,* R. B. ALFIN-SLATER AND B. H. ERSHOFF. *Univ. of Southern California, Los Angeles.*

2:45 **1839.** Preservation of vitamin A in feeds. J. C. FRITZ, F. D. WHARTON, JR.,* R. M. HENLEY* AND R. B. SCHOENE.* *Dawe's Labs., Inc.*

3:00 **1840.** Effect of aureomycin on apparent utilization of vitamin A by the rat. T. K. MURRAY* AND J. A. CAMPBELL. *Dept. of Natl. Health and Welfare, Ottawa.*

3:15 **1841.** Effect of aureomycin on anemia of gastrectomized rat. MARIAN E. SWENDSEID, NORMA J. LONG AND JAMES A. HALSTED (intr. by W. H. GRIFFITH). *Univ. of California and the VA Ctr., Los Angeles.*

3:30 **1842.** Effects of various minor growth factors and antibiotics on growth of rats fed a suboptimal diet. W. KNOWLTON HALL,* V. P. SYDENSTRICKER AND ROBERT W. OLIVER.* *Med. College of Georgia.*

3:45 **1843.** Penicillamine (β-mercaptovaline) and growth of chicks. THOMAS H. JUKES. *Lederle Labs.*

Nutrition Society Business Meeting

TUESDAY, 4:15 P.M.—CONVENTION HALL, ARENA STAGE

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONVENTION HALL, BALLROOM

Program on page 628

Wednesday Morning, April 18, 9:00 a.m.

Lipids

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM A

Chairman: Harry J. Deuel, Jr.

9:00 **1844.** Digestibility of modified fats. DORIS HOWES CALLOWAY AND GEORGE W. KURTZ.* *QM Food and Container Inst.*

9:15 **1845.** Role of fat in metabolism under stress conditions. HAZEL M. FOX,* PEARL P. SWANSON AND EMERSON BIRD.* *Iowa Exp. Station.*

9:30 **1846.** Distribution of a labeled lipid in ailmentary lipemia. WILLIAM W. BURR, JR.* AND HERBERT C. TIDWELL. *Southwestern Med. School, Univ. of Texas.*

9:45 **1847.** Nutritional studies on acetylated monoglycerides, absorption of acetic acid from the stomach and deposition of lipid-bound, volatile acids in tissues. DAVID C. HERTING,* STANLEY R. AMES, NORRIS D. EMBREE AND PHILIP L. HARRIS. *Distillation Products Industries Div. of Eastman Kodak Co.*

10:00 **1848.** Multiple level studies for estimation of anabolic properties of steroids. AARON ARNOLD, JESSY S. SCHAD* AND A. L. BEYLER.* *Sterling-Winthrop Research Inst.*

10:15 **1849.** Inhibitory effect of androgenic steroids on 3β-ol-steroid dehydrogenase activity of beef adrenal homogenate. A. L. BEYLER,* SHIRLEY D. SOBELL* AND AARON ARNOLD. *Sterling-Winthrop Research Inst.*

10:30 **1850.** Essential fatty acid deficiency in the chick. J. G. BIERI, G. M. BRIGGS, M. R. S. FOX,* C. J. POLLARD* AND L. O. ORTIZ.* *Natl. Insts. of Health.*

10:45 **1851.** Effect of x-irradiation on distribution of fatty acids in rat tissues. AMBER L. S. CHENG,* SUPRAVAT MUKHERJEE,* ROSLYN B. ALFIN SLATER AND HARRY J. DEUEL, JR. *Univ. of Southern California School of Medicine.*

11:00 **1852.** Effect of intake of linoleic acid on unsaturated fatty acids in serum of infants. HILDA F. WIESE, ARILD E. HANSEN, DORIS J. D. ADAM* AND MARJORIE A. BAUGHAN.* *Univ. of Texas Med. Branch.*

11:15 **1853.** Relation of dietary cholesterol to essential fatty acid deficiency. JAMES J. PEIFER* AND RALPH T. HOLMAN. *Hormel Inst.* (Biochem.)

Amino Acids

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ARENA STAGE

Chairman: Paul György

9:00 **1854.** Factors influencing amino acid utilization in the adult male albino rat. SHIANG P. YANG* AND PEARL P. SWANSON. *Iowa State College.*

9:15 **1855.** Amino acid inadequacy of blood. H. S. PERDUE,* G. F. LAMBERT* AND D. V. FROST. *Abbott Labs.*

9:30 **1856.** Absorption of basic amino acids from human small intestine. ALINE UNDERHILL ORTEN, NICHOLAS S. GIMBEL* AND ARTHUR H. SMITH. *Wayne Univ. College of Medicine.*

9:45 **1857.** Effect of adrenalectomy on response to isoleucine-deficiency in rats. JESS W. BROMLEY AND THOMAS E. SODERBERG (intr. by LEO T. SAMUELS). *Univ. of Utah College of Medicine.*

10:00 **1858.** Importance of arginine and methionine for growth and fur development of mink on purified diets. WILLIAM L. LEOSCHKE* AND CONRAD A. ELVEHJEM. *Univ. of Wisconsin.*

10:15 **1859.** Effect of dietary lysine on tyrosinase activity in feather pulp of turkey poults. F. H. KRATZER AND PRAN VOHRA.* *Univ. of California, Davis.*

10:30 **1860.** Relationship of protein level to the minimum lysine requirement of the rat. RICARDO BRESSANI* AND EDWIN T. MERTZ. *Purdue Univ.*

10:45 **1861.** Lysine requirement of normal infant. SELMA E. SNYDERMAN, L. EMMETT HOLT, JR., PATRICIA NORTON,* DOROTHY I. FOWLER* AND EILEEN HASSELMEYER.* *New York Univ. College of Medicine.*

11:00 **1862.** Investigations of lysine requirement of adult men and women. HELEN CLARK,* EVA KWONG,* JEAN HOWE,* DONALD C. DELONG* AND EDWIN T. MERTZ. *Purdue Univ.*

11:15 **1863.** Growth response of rats on bread mixtures containing nonfat milk solids with and without lysine supplementation. JANE K. JAHNKE* AND CECILIA SCHUCK. *Purdue Univ.*

11:30 **1864.** Classification of essential amino

acids for the Chinook salmon. DONALD C. DELONG,* JOHN E. HALVER* AND EDWIN T. MERTZ. *U.S. Fish and Wildlife Service and Purdue Univ.*

11:45 **1865.** Influence of amino acids and other organic compounds on the gastrointestinal absorption of radiocalcium and radiostrontium. R. H. WASSERMAN,* C. L. COMAR AND MAX M. NOLD.* *Oak Ridge Inst. of Nuclear Studies.*

Wednesday Afternoon, April 18, 1:15 p.m.

Symposium: Amino Acids and Proteins

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, BALLROOM

Chairman: W. C. Rose

1866. Introductory remarks. W. C. ROSE. *Univ. of Illinois, Urbana.*

1867. Amino acid imbalance. CONRAD A. ELVEHJEM. *Univ. of Wisconsin, Madison.*

1868. Metabolism of glycine; acyl glycine cycle. DAVID SHEMIN. *College of Physicians and Surgeons, Columbia Univ., New York City.*

1869. Present status of some problems regarding biosynthesis of proteins. HENRY BORSOOK. *California Inst. of Technology, Pasadena.*

1870. Characteristics of severe protein malnutrition in children with special reference to Kwashiorkor. NEVIN S. SCRIMSHAW. *Instituto de Nutricion de Centro America y Panama, Guatemala, Central America.*

American Institute of Nutrition Dinner

Presentation of Awards

WEDNESDAY, 6:30 P.M.—HOTEL MADISON, MAIN DINING ROOM

Tickets available at the ticket desk, Convention Hall

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

Thursday Morning, April 19, 9:00 a.m.

Vitamin E

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM A

Chairman: Edwin L. Hove

9:00 **1871.** Vitamin E in chick nutrition. M. L. SCOTT AND T. S. NELSON.* *Cornell Univ.*

9:15 **1872.** Turkey embryo eye as related to a deficiency of vitamin E. T. M. FERGUSON,* R. H. RIGDON* AND J. R. COUCH. *Texas A. and M. College and Univ. of Texas Med. School.*

9:30 **1873.** Anemia in vitamin E-deficient monkeys. PAUL L. DAY AND JAMES S. DINNING. *Univ. of Arkansas.*

9:45 **1874.** Effect of tocopherol on creatinuria of children with steatorrhea. H. M. NITOWSKY,* H. H. GORDON AND J. T. TILDON.* *Sinai Hosp. of Baltimore, Harriet Lane Home, and Johns Hopkins Univ.*

10:00 **1875.** Influence of vitamin E deficiency in rabbits on the incorporation of glycine-1-C^{14}, and formate C^{14} into glycine, serine and methionine of skeletal muscle in vivo. JOHN T. SIME,* DOUGLAS E. YOUNG,* JAMES S. DINNING AND PAUL L. DAY. *Univ. of Arkansas School of Medicine.*

10:15 **1876.** Vitamin E-deficiency and tricarboxylic acid cycle oxidation: Effect of pyrophosphate and adenine nucleotide concentration. I. M. WEINSTOCK,* A. D. GOLDRICH* AND A. T. MILHORAT. *Cornell Univ. Med. College, New York Hosp.*

10:30 **1877.** Hemoglobinuria induced in the vitamin E deficient rat by massive injections of water-soluble vitamin K. WILBUR MARUSICH,* ELMER DE RITTER* AND SAUL H. RUBIN. *Hoffmann-La Roche, Inc.*

10:45 **1878.** Dietary necrotic liver degeneration: comparison of peripheral intravenous and intraportal injection of vitamin E in respiratory decline. WALTER MERTZ AND KLAUS SCHWARZ (introduced by GEORGE M. BRIGGS). *Natl. Insts. of Health.*

11:00 **1879.** Torula yeast and liver necrosis. L. J. SCHROEDER,* T. HIRATZKA* AND A. H. SMITH. *Wayne Univ. College of Medicine.*

Inorganic Elements

THURSDAY, 9:00 A.M.—CONVENTION HALL, ARENA STAGE

Chairman: George K. Davis

9:00 **1880.** Relation of fluorine to metabolism of sulfur-35 and related factors. J. J. PINAJIAN,* J. A. BACON,* F. R. MRAZ* AND H. PATRICK. *UT-AEC Agric. Research Program, Oak Ridge.*

9:15 **1881.** Sulfur metabolism in baby pigs. R. KULWICH,* L. STRUGLIA* AND P. B. PEARSON. *U.S. Dept. of Agriculture.*

9:30 **1882.** Alleviation of molybdenum toxicity in the rat with inorganic sulfate. RUSSELL F. MILLER AND NELSON O. PRICE (introduced by PAUL H. PHILLIPS). *Virginia Polytechnic Inst.*

9:45 **1883.** Competitive role of tungsten in molybdenum nutrition. EDWIN S. HIGGINS,* DAN A. RICHERT AND W. W. WESTERFELD. *State Univ. of New York College of Medicine.* (Biochem.)

10:00 **1884.** Influence of mineral elements and pH upon the hatching of golden nematode (Heterodera rostochiensis Wollenweber) larvae. TREVOR ROBINSON AND A. L. NEAL (introduced by H. H. WILLIAMS). *Cornell Univ.* (Biochem.)

10:15 **1885.** Inorganic chick growth promoting substances from natural products. B. L. REID,* R. S. SVACHA* AND J. R. COUCH. *Texas A. and M. College.* (Biochem.)

10:30 **1886.** Ash of unidentified growth factor supplements. A. B. MORRISON,* RICHARD DAM,* L. C. NORRIS AND M. L. SCOTT. *Cornell Univ.*

10:45 **1887.** Hemin chromoproteins in copper-deficient and iron-deficient swine. C. J. GUBLER, C. E. CARTWRIGHT AND M. M. WINTROBE. *Univ. of Utah College of Medicine.*

11:00 **1888.** Tolerance to arsanilic acid in mink. HENRY C. SPRUTH,* ROBERT A. RIEKER* AND DOUGLAS V. FROST. *Abbott Labs.* (Biochem.)

Thursday Afternoon, April 19, 1:15 p.m.

General Nutrition

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM A

Chairman: Paul L. Day

1:15 **1889.** Nutritional studies with rats subjected to thyrotoxic stress. GLADYS A. EMERSON, BARBARA ESSER* AND ATWOOD C. PAGE.* *Merck Inst. for Therapeutic Research and Research Labs., Chemical Div. of Merck and Co., Inc.*

1:30 **1890.** Factors in liver reversing thyroid stress in rats. ATWOOD C. PAGE, JR.* FRANK R. KONIUSZY,* DONALD E. WOLF,* PAUL ALDRICH* AND KARL FOLKERS. *Merck and Co., Inc.*

1:45 **1891.** Reversal of sulfaguanidine toxicity in the rat. C. J. ACKERMAN (introduced by W. D. SALMON). *Virginia Polytechnic Inst.*

2:00 **1892.** Choline compounds and ethylene oxide treatment of diets. R. S. YAMAMOTO, E. A. HAWK AND O. MICKELSEN (introduced by J. G. BIERI). *Natl. Insts. of Health.*

2:15 **1893.** Alterations in casein by exposure to ethylene oxide. HERBERT G. WINDMUELLER AND R. W. ENGEL (introduced by OLAF MICKELSEN). *Virginia Polytechnic Inst.* (Biochem.)

2:30 **1894.** Effect of nutritional supplements on production of 'Myleran' cataracts in rats. AMOS E. LIGHT,* CYRIL SOLOMON* AND E. J. DEBEER (introduced by R. J. BLOCK). *Wellcome Research Labs. and French Hosp.*

2:45 **1895.** Nutritive value of glycine-related compounds for the chick. ROBERT L. WIXOM,* GEORGE E. PIPKIN* AND PAUL L. DAY. *Univ. of Arkansas School of Medicine.*

3:00 **1896.** Nutritional and genetic determinants in acute disseminated encephalomyelitis in mice. JOHANNA M. LEE,* HOWARD A. SCHNEIDER AND PETER K. OLITSKY.* *Rockefeller Inst. for Med. Research.*

3:15 **1897.** Effect of vitamin injections on survival of chicks with a high mortality syndrome. LEO S. JENSEN,* JOHN ALLRED,* RAMON FRY* AND JAMES MCGINNIS. *State College of Washington.*

3:30 **1898.** Water-soluble vitamin requirements of Chinook salmon. JOHN E. HALVER (introduced by EDWIN T. MERTZ). *U.S. Fish and Wildlife Service.*

3:45 **1899.** Relation of sodium, potassium and chloride intake to cortisone action. H. KAUNITZ, C. J. SLANETZ,* R. E. JOHNSON* AND J. GUILMAIN.* *Columbia Univ.* (Pathol.)

Nutrition Society Business Meeting

THURSDAY, 4:15 P.M.—CONVENTION HALL, ARENA STAGE

Inter-Society Symposium: Nutritional and Toxicological Studies on Irradiated Foods

THURSDAY, 1:15 P.M.—CONVENTION HALL, ARENA STAGE

Program on page 641

Friday Morning, April 20, 9:00 a.m.

Proteins

FRIDAY, 9:00 A.M.—CONVENTION HALL, ROOM A

Chairman: James B. Allison

9:00 **1900.** Application of PDR amino acid index to measurement of net utilization of heated proteins. A. LEONARD SHEFFNER, RICHARD ADACHI* AND HARRY SPECTOR. *QM Food and Container Inst.* (Biochem.)

9:15 **1901.** Dietary protein level and regulation of food intake. PAUL F. FENTON. *Brown Univ.*

9:30 **1902.** Level of protein in diet and its biological value. R. M. FORBES, MARTHA YOHE* AND LUCILE VAUGHAN.* *Univ. of Illinois.*

9:45 **1903.** Urinary creatinine as measure of endogenous nitrogen. JANICE M. SMITH, SHIH-DZUNG CHEN,* EDNA DICK,* ALICE HARE,* MARTHA MCMILLAN* AND BEULA V. MCKEY. *Univ. of Illinois.*

10:00 **1904.** Interrelation of protein and calories during caloric restriction. J. J. VITALE,* P. L. WHITE,* L. SINISTERRA,* D. M. HEGSTED AND N. ZAMCHECK.* *Harvard School of Public Health and Boston Univ. Med. School.*

10:15 **1905.** Determination of nitrogen balance indexes of dietary proteins in the cat. J. B. ALLISON, S. A. MILLER* AND M. K. BUSH.* *Rutgers Univ.*

10:30 **1906.** Protein and amino acid studies with the guinea pig. MARY ELIZABETH REID. *Natl. Insts. of Health.*

10:45 **1907.** Comparison of nitrogen balance on amino acids and whole egg. E. S. NASSET. *Univ. of Rochester School of Medicine and Dentistry.*

11:00 **1908.** Protein nutrition of elderly women. PEARL P. SWANSON, JANE LEICHSENRING,* HELLEN LINKSWILER* AND HAZEL FOX.* *Iowa, Minnesota and Nebraska Exp. Stations.*

11:15 **1909.** Daily nitrogen retentions of aging women on self-selected diets. WILMA D. BREWER, PEARL SWANSON, LIDA BURRILL,* JANE LEICHSENRING,* HELLEN LINKSWILER,* MAY REYNOLDS AND MARGARET MANGEL.* *Agricultural Exp. Stations of Michigan, Iowa, South Dakota, Minnesota, Nebraska, Wisconsin and Missouri.*

11:30 **1910.** Effects of casein and amino acid mixtures on nutritional cirrhosis of rats. S. I. COHEN, A. J. PATEK, JR., E. SCHMATOLLA AND M. BEVANS (intr. by DAVID SEEGAL). *Columbia Univ. and Coldwater Memorial Hosp.* (Immunol.)

11:45 **1911.** Withdrawn.

Human Nutrition

FRIDAY, 9:00 A.M.—CONVENTION HALL, ARENA STAGE

Chairman: Hazel K. Stiebeling

9:00 **1912.** Dietary practices of three samples of women. LAURA HARPER* AND MARGARET A. OHLSON. *Michigan State Univ.*

9:15 **1913.** Nutritional quality of food purchases of urban families. LOUISE KELLEY,* MARGARET A. OHLSON AND GERALD G. QUACKENBUSH.* *Michigan State Univ.*

9:30 **1914.** Dietary study in a Thai village. HAZEL M. HAUCK AND SAOVANEE SUDSANEH.* *Cornell Univ.*

9:45 **1915.** Tea delays dental caries. J. F. MCCLENDON AND J. GERSHON-COHEN.* *Albert Einstein Med. Ctr., Philadelphia.*

10:00 **1916.** Iron administration in a tropical area. P. L. WHITE,* A. QUIROZ,* L. GONZALAS,* S. MORALES,* J. ATKINS,* M. F. TRULSON,* C. COLLAZOS* AND D. M. HEGSTED. *Instituto Nacional de Higiene and Unidad Sanitaria de Loreto, Ministerio de Salud Publica, Lima, Peru; Harvard School of Public Health.*

10:15 **1917.** Nitrogen retention and riboflavin metabolism in human subjects fed low intakes of the vitamin. RUTH N. LUTZ,* MARILYN B. DERBY,* BETTY M. EINSET,* ZAIDA H. PIERCE* AND H. H. WILLIAMS. *Cornell Univ.*

10:30 **1918.** Effect of fructose feeding on glucose tolerance in man. THEODORE B. VAN ITALLIE, KENNETH H. SHULL AND MARY B. MCCAIN (intr. by F. J. STARE). *Harvard School of Public Health.*

10:45 **1919.** Metabolism of folic acid by human subjects. LUCILA S. SANTIAGO,* M. ANN WALDORF,* MARTHA MCMILLAN* AND HELEN T. PARSONS. *Univ. of Wisconsin.* (Biochem.)

11:00 **1920.** Saturation studies with vitamin B_{12} in human subjects. WALTER G. UNGLAUB,* O. NEAL MILLER AND GRACE A. GOLDSMITH. *Tulane Univ.* (Biochem.)

11:15 **1921.** Effect of vitamin B_{12}, aureomycin and penicillin on growth of Guatemalan school children. NEVIN S. SCRIMSHAW, OUDE B. TANDON* AND CARLOS PÉREZ. *Inst. of Nutrition of Central America and Panama, Guatemala.*

Friday Afternoon, April 20, 12:30 p.m.

Inorganic Elements

FRIDAY, 12:30 P.M.—CONVENTION HALL, ROOM A

Chairman: L. C. Norris

12:30 **1922.** Effect of previous calcium intake of four young men upon amount they retained from low calcium diet. FRANCES A. JOHNSTON, CAROLYN TREDWELL* AND ELIZABETH DIAO.* *Cornell Univ.*

12:45 **1923.** Bone density relationships in adolescence. LURA M. ODLAND (intr. by AGNES FAY MORGAN). *Montana Agric. Exp. Station.*

1:00 **1924.** Quantitative measurements of bone density changes in rats fed diets of different calcium content. HARALD SCHRAER AND ROSEMARY SCHRAER (intr. by J. P. MCCLENDON). *Albert Einstein Med. Ctr., Philadelphia.*

1:15 **1925.** Species differences in excretion of intravenously injected calcium[45]. ROBERT L. WANNER,* JOAN R. MOOR,* FELIX BRONNER,* NANCY S. PEARSON* AND ROBERT S. HARRIS. *Massachusetts Inst. of Technology.*

1:30 **1926.** Effect of vitamin D deficit diets containing various Ca:P ratios on cats. S. N. GERSHOFF* AND D. M. HEGSTED. *Harvard School of Public Health.*

1:45 **1927.** Effect of growth hormone and vitamin D on rats on a low-Ca normal-P diet. JOHN W. CRAMER,* ELBA I. PORRATA-DORIA* AND HARRY STEENBOCK. *Univ. of Wisconsin.*

PAPERS READ BY TITLE

1928. Nature of supplementary value of vitamin B_{12} to proteins in the infant food, Pablum (mixed cereal). BARNETT SURE. *Univ. of Arkansas.*

1929. Basal metabolism of girls in Great Lakes Region. ISIDOR GREENWALD. *New York Univ. College of Medicine, New York City.*

1930. Amino acid test diet for salmon. JOHN E. HALVER (intr. by EDWIN T. MERTZ). *U.S. Fish and Wildlife Service, Cook, Washington.*

1931. Value of further improvement in bread quality as indicated by rat feeding studies. E. E. HAWLEY. *Univ. of Rochester School of Medicine and Dentistry.*

1932. Changes in niacin metabolism of rats produced by ovariectomy and administration of sex hormones. MARY E. LOJKIN,* BERYL S. BOUCHARD* AND ANNE W. WERTZ. *Univ. of Massachusetts.*

1933. Supplementary value of millet for low-casein, raw-corn diets. AURORA S. MANGAY,* WILLIAM N. PEARSON* AND WILLIAM J. DARBY. *Vanderbilt Univ. School of Medicine.*

1934. Toxicity of ethionine as influenced by methionine and pregnancy. M. ELIZABETH MARSH, ELEANOR S. IRVINE,* L. D. GREENBERG AND J. F. RINEHART* (deceased). *Univ. of California School of Medicine, San Francisco.*

1935. Effect of hydrocortisone on ascorbic acid synthesis in the rat. AGNES FAY MORGAN AND MILDRED J. BENNETT.* *Univ. of California, Berkeley.*

1936. Effects of excess vitamin A palmitate in paired feeding experiments on albino rats. MYRA M. SAMPSON, ESTHER CARPENTER* AND ROLAND WIGHT.* *Smith College.*

1937. Tocopherol nutriture in patient with xanthomatous biliary cirrhosis. CALVIN W. WOODRUFF. *Vanderbilt Univ. School of Medicine.*

THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS

Fortieth Annual Meeting

ATLANTIC CITY, APRIL 16–20, 1956

*An asterisk * following an author's name indicates "by invitation"*
For complete institutional connection and address, see abstract, Part I

Monday Afternoon, April 16, 1:15 p.m.

Tissue Culture: General

MONDAY, 1:15 P.M.—CONVENTION HALL, ROOM 20

Chairman: Harry Eagle

1:15 **1938.** Amino acid requirements of rabbit fibroblasts, strain RM3. R. F. HAFF* AND H. E. SWIM* (intr. by R. F. PARKER). *Western Reserve Univ. School of Medicine.*

1:30 **1939.** Establishment of two lines of nasal 'epithelial' cells in continuous culture. WILLIAM S. JORDAN, JR. *Western Reserve Univ. School of Medicine.*

1:45 **1940.** Propagation of virus in tissue culture employing a simple maintenance medium without serum. MURRAY FRIEDMAN AND MELVIN LIEBERMAN (intr. by DOROTHY HAMRE). *Naval Med. Research Unit No. 4, Great Lakes.*

2:00 **1941.** Cross reactions between antisera to different human cell strains. KARL HABEL AND NANCY C. GREGG.* *Natl. Insts. of Health.*

2:15 **1942.** Masked viral infection of HeLa cell cultures. HAROLD S. GINSBERG AND GEORGIANA S. BOYER.* *Western Reserve Univ. School of Medicine.*

2:30 **1943.** Effect of tuberculin on tissue cultures of cornea of tuberculin-sensitive guinea pigs. RUSSELL S. WEISER AND KARL J. MAY.* *Univ. of Washington School of Medicine, Seattle.*

2:45 **1944.** Growth characteristics of certain mycobacteria in HeLa cells. CHARLES C. SHEPARD. *Communicable Disease Ctr., Montgomery.*

3:00 **1945.** Viral susceptibilities of human amnion cells in tissue culture. KENNETH K. TAKEMOTO AND ALBERT M. LERNER (intr. by DORLAND J. DAVIS). *Natl. Insts. of Health.*

3:15 **1946. Presidential address:** JULES FREUND. *Public Health Research Inst., New York City.*

Tuesday Morning, April 17, 9:00 a.m.

Poliomyelitis I

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 20

Chairman: Albert B. Sabin

9:00 **1947.** Immunization of infants and preschool children with poliomyelitis vaccine. GORDON C. BROWN AND DONALD C. SMITH.* *Univ. of Michigan School of Public Health and School of Medicine*

9:15 **1948.** Type I Poliomyelitis strains in monkeys. I. WILLIAM MCLEAN JR., E. A. TIMM,* W. A. RIGHTSEL,* E. Z. ROPE* AND H. P. DROBECK.* *Parks, Davis and Co.*

9:30 **1949.** Thermal inactivation studies with different strains of poliomyelitis virus. J. S. YOUNGNER. *Univ. of Pittsburgh.*

9:45 **1950.** Effect of prolonged formaldehyde treatment upon antigenic activity of different strains of poliomyelitis viruses. JONAS E. SALK, BYRON L. BENNETT,* L. J. LEWIS,* AND FRANCIS YUROCHKO.* *Univ. of Pittsburgh.*

10:00 **1951.** Dynamics of formalin inactivation of poliomyelitis virus suspensions. EUGENE A. TIMM,* I. W. MCLEAN, JR., C. H. KUPSKY* AND A. E. HOOK.* *Parke, Davis and Co.*

10:15 **1952.** Effect of ultraviolet light on poliomyelitis virus. ALTON R. TAYLOR, W. W. KAY,* E. A. TIMM,* I. W. MCLEAN, JR., F. OPPENHEIMER* AND F. D. STIMPERT.* *Parke, Davis and Co.*

10:30 **1953.** Sensitivity response of tissue cultures to various types of inactivated poliomyelitis virus. W. B. BEARDMORE, RAYMOND W. SARBER AND A. E. HOOK (intr. by I. WILLIAM MCLEAN, JR.). *Parke, Davis and Co.*

10:45 **1954.** Possible multiplicity reactivation of 'damaged' poliomyelitis virus particles to yield infectious virus. FRANCIS L. BLACK* AND JOSEPH L. MELNICK. *Yale Univ.*

11:00 **1955.** Action of M5-8450 and helenine against experimental poliomyelitis in monkeys. KENNETH W. COCHRAN,* LIANG WEI CHU* AND THOMAS FRANCIS, JR. *Univ. of Michigan.*

11:15 **1956.** Physical particle per plaque ratios observed for human poliomyelitis viruses. JORGEN FOGH AND CARLTON E. SCHWERDT (intr. by WENDELL M. STANLEY). *Univ. of California, Berkeley.* (Biochem.)

Antigens and Antibodies I

TUESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 21

Chairman: Albert H. Coons

9:00 **1957.** Cross reactions of glycogen and limit dextrin in antipneumococcus sera. MICHAEL HEIDELBERGER, BERTIL BJORKLUND,* FELIX CORDOBA* AND HANS JAHRMÄRKER.* *Columbia Univ., College of Physicians and Surgeons, and Rutgers Univ.*, (Biochem.)

9:15 **1958.** Antigenicity of synthetic polypeptides. MARK A. STAHMANN, HIROSHI TSUYUKI,* KARL F. WEINKE,* CLAUD LAPRESLE* AND PIERRE GRABAR.* *Univ. of Wisconsin and Service de Chemie Microbienne, Institut Pasteur, Paris, France.* (Biochem.)

9:30 **1959.** Hydration of pyridine as a determinant in specificity. ALFRED NISONOFF* AND DAVID PRESSMAN. *Roswell Park Memorial Inst., Buffalo.* (Biochem.)

9:45 **1960.** Quantitative determination of C-reactive protein by complement fixation. MAURICE M. RAPPORT AND LISELOTTE GRAF.* *Sloan-Kettering Inst. for Cancer Research, and Sloan-Kettering Div., Cornell Univ. Med. College.* (Biochem.)

10:00 **1961.** Changes in properties of human diphtheria antitoxins associated with use of chemical agents. WILLIAM J. KUHNS. *Univ. of Pittsburgh.*

10:15 **1962.** Human plasmapheresis and its effect on antibody levels. JOSEPH SMOLENS AND JOSEPH STOKES, JR.* *Univ. of Pennsylvania School of Medicine.*

10:30 **1963.** Effect of antibodies on nucleated mammalian cells in vitro. BERNARD KALFAYAN (intr. by JOHN SUGG). *Beekman-Downtown Hosp., New York.*

10:45 **1964.** Eluted antibodies. KARL L. ROTH AND ABRAHAM M. FRUMIN (intr. by CECILIA RIEGEL). *Albert Einstein Med. Ctr., Philadelphia.* (Biochem.)

11:00 **1965.** Tissue fraction which agglutinates autologous red cells. ROBERT R. KOHN AND EDWARD R. ARQUILLA (intr. by LOUIS PILLEMER). *Benjamin Rose Hosp., and Western Reserve Univ. School of Medicine.*

11:15 **1966.** Behavior of agglutination activating factor of rheumatoid arthritis sera with immune precipitates. JOHN H. VAUGHAN. *Med. College of Virginia.*

Tuesday Afternoon, April 17, 1:15 p.m.

Poliomyelitis II: ECHO Viruses

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 20

Chairman: Jonas E. Salk

1:15 **1967.** Persistence of poliomyelitis virus during serial passage of HeLa cells. W. WILBUR ACKERMANN. *Univ. of Michigan School of Public Health.*

1:30 **1968.** Nutritional requirements for propagation of poliomyelitis virus by HeLa cells in tissue culture. HARRY EAGLE AND KARL HABEL. *Natl. Insts. of Health*

1:45 **1969.** Effect of pH on metabolism of strain HeLa cells and on replication of poliomyelitis virus. GEORGE E. GIFFORD,* HUGH E. ROBINSON* AND JEROME T. SYVERTON. *Univ. of Minnesota.*

2:00 **1970.** Sequence of morphological changes in poliomyelitis virus infected cells in culture, correlated with the growth cycle of the virus. MAGDALENA REISSIG,* DAVID HOWES* AND JOSEPH L. MELNICK. *Yale Univ.*

2:15 **1971.** Correlation of cytopathogenesis with poliomyelitis virus release. THELMA H. DUNNEBACKE (intr. by C. A. KNIGHT). *Univ. of California, Berkeley.* (Biochem.)

2:30 **1972.** Differentiation of poliomyelitis, Coxsackie and ECHO (enteric cytopathogenic human orphan) viruses by plaque morphology and host-cell susceptibility. G. D. HSIUNG* AND JOSEPH L. MELNICK. *Yale Univ.*

2:45 **1973.** Poliomyelitis virus complement-fixing antigen extracted from human feces with use of ion-exchange resins. GERALD A. LOGRIPPO. *Henry Ford Hosp.*

3:00 **1974.** Complement fixation with purified poliomyelitis virus. MANFRED M. MAYER AND HERBERT J. RAPP.* *Johns Hopkins Univ. School of Hygiene and Public Health.*

3:15 **1975.** Poliomyelitis: sero-epidemiologic survey of remote areas in Amazon Basin and Middle East. H. M. MEYER, JR., N. G. ROGERS AND D. C. GAJDUSEK (intr. by M. R. HILLEMANN). *Walter Reed Army Med. Ctr., and Univ. of Maryland School of Medicine.*

3:30 **1976.** ECHO viruses isolated in survey of normal persons, Luzon, Philippine Islands. E. H. LUDWIG* AND W. McD. HAMMON. *Univ. of Pittsburgh.*

Antigens and Antibodies II

TUESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 21

Chairman: Alwin M. Pappenheimer, Jr.

1:15 **1977.** Ultracentrifugal separation of two antibodies of similar specificity but different hemolytic efficiency. DAVID W. TALMAGE, GLORIA L. FRETER* AND WILLIAM H. TALIAFERRO. *Univ. of Chicago.*

1:30 **1978.** Electrophoretic and ultracentrifugal studies of rabbit antiserum to sheep red blood cells and to boiled sheep RBC stromata. PETER STELOS* AND DAVID W. TALMAGE. *Univ. of Chicago.*

1:45 **1979.** Quantitative studies on specificity of Wassermann antibody. ABRAHAM G. OSLER AND ELEANOR A. KNIPP.* *Johns Hopkins Univ. School of Hygiene and Public Health.*

2:00 **1980.** Differentiation of antilipids occurring in leprosy, lupus erythematosus and syphilis. JOHN F. KENT, JAMES C. BURKE* AND A. GARCIA OTERO.* *Walter Reed Army Inst. of Research, and Univ. Hosp., Havana, Cuba.*

2:15 **1981.** Use of chicken antisera for rapid determination of plasma protein components. MORRIS GOODMAN, DAVID S. RAMSEY,* WILLIAM L. SIMPSON,* DONALD G. REMP,* DANIEL H. BASINSKI* AND MICHAEL J. BRENNAN.* *Detroit Inst. of Cancer Research, and Henry Ford Hosp.*

2:30 **1982.** Antigenic relationship of gamma globulins, cryoglobulins and macro-cryoglobulin. LEONHARD KORNGOLD. *Sloan-Kettering Inst. for Cancer Research.*

2:45 **1983.** Physical binding of insulin by gamma globulins from insulin-resistant subjects. THEODORE PETERS,* BELTON A. BURROWS* AND FRANCIS C. LOWELL. *Boston VA Hosp., Robert Dawson Evans Memorial, and Boston Univ. School of Medicine.*

3:00 **1984.** Antibody-combining properties of bacterial flagella. KURVENAL READ, MERWIN MOSKOWITZ AND HENRY KOFFLER (intr. by F. JOSEPH MURRAY). *Purdue Univ.*

3:15 **1985.** Immunogenetic studies of tryptophan synthetase formation in Neurospora crassa. SIGMUND R. SUSKIND (intr. by A. M. PAPPENHEIMER, JR.). *New York Univ. College of Medicine.*

3:30 **1986.** Effect of antibiotics on antigenic structure of Shigella flexneri. ROBERT B. LINDBERG AND KOIBONG LI (intr. by MAURICE LANDY). *Walter Reed Army Inst. of Research, and 406th Med. General Lab., Tokyo, Japan.*

Immunology Society Business Meeting

TUESDAY, 4:15 P.M.—CONVENTION HALL, ROOM 20

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONVENTION HALL, BALLROOM

Program on page 628

Offices

Federation Office, Room 8, Ballroom level, Convention Hall
Exhibit Manager's Office, Main Arena, Convention Hall

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Visible Index of Registrants and Message Center

Consult the visible index of registrants in the Lobby of Convention Hall to locate friends. Take the numbered cards on the message boards to the information desk; the attendant will give you messages left for you.

Wednesday Morning, April 18, 9:00 a.m.

Rickettsiae: Neurotropic and Other Viruses

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 20

Chairman: Joseph E. Smadel

9:00 **1987.** Microscopic observations of living rickettsiae. M. SCHAECHTER AND F. M. BOZEMAN (intr. by E. B. JACKSON). *Walter Reed Army Med. Ctr.*

9:15 **1988.** Growth characteristics of rickettsiae in tissue culture. F. M. BOZEMAN,* H. E. HOPPS,* J. X. DANAUSKAS,* E. B. JACKSON AND J. E. SMADEL. *Walter Reed Army Med. Ctr.*

9:30 **1989.** Serological approach to epidemiology of typhus and Q fever in Bosnia. A. L. TERZIN AND J. GAON (intr. by F. S. CHEEVER). *Med. Faculty, Univ. of Sarajevo, Sarajevo, Yugoslavia.*

9:45 **1990.** Cultivation and titration of Japanese B encephalitis virus in embryonated eggs. DOROTHY G. SMITH AND ALBERT S. HERRING (intr. by GEORGE G. WRIGHT). *Camp Detrick, Frederick.*

10:00 **1991.** Effect of cortisone and X-ray on peripherally induced Japanese B encephalitis virus infection in hamsters. IMAM Z. E. IMAM* AND W. McD. HAMMON. *Univ. of Pittsburgh.*

10:15 **1992.** Serological survey of arthropod-borne virus infections of Iran and Afghanistan residents. J. R. SCHMIDT, E. L. BUESCHER AND D. C. GAJDUSEK (intr. by J. A. MORRIS). *Walter Reed Army Med. Ctr., and Univ. of Maryland Med. School.*

10:30 **1993.** Serological survey for certain mosquito-borne viral infections in Luzon, Philippine Islands. W. McD. HAMMON, G. E. SATHER,* W. D. SCHRACK, JR.* AND B. J. MILLER.* *Univ. of Pittsburgh.*

10:45 **1994.** Susceptibility of rats to certain encephalitis viruses. EDWIN C. CORRISTAN, LOUIS C. LA MOTTE, JR. AND DOROTHY G. SMITH (intr. by GEORGE G. WRIGHT). *Camp Detrick, Frederick.*

11:00 **1995.** Antagonists of murine encephalomyelitis virus in vitro. HAROLD E. PEARSON, DOROTHY L. LAGERBORG* AND DONALD W. VISSER.* *Univ. of Southern California School of Medicine, and Los Angeles County Hosp.*

11:15 **1996.** Growth and titration of vaccinia virus in embryonated eggs. MARY SHIPP WATSON, HELEN JEFFRIES, JAMES W. PRYOR AND DOROTHY G. SMITH (intr. by GEORGE G. WRIGHT). *Camp Detrick, Frederick.*

11:30 **1997.** Measles in humans and monkeys: isolation from cynomolgus monkeys of an agent immunologically related to human measles virus. GISELA RUCKLE (intr. by JONAS E. SALK). *Univ. of Pittsburgh School of Medicine.*

11:45 **1998.** Withdrawn.

Antigens and Antibodies III

WEDNESDAY, 9:00 A.M.—CONVENTION HALL, ROOM 21

Chairman: Frank J. Dixon

9:00 **1999.** Canine distemper in ferrets and dogs by means of fluorescent antibody. CHI'EN LIU AND DAVID L. COFFIN.* *Harvard Med. School, and Angell Memorial Hosp., Boston.*

9:15 **2000.** Detection of nonprecipitating antibody with radioiodinated antigen. ROBERT FEINBERG (intr. by E. L. BECKER). *Walter Reed Army Inst. of Research.*

9:30 **2001.** Rate of localization of anti-rat-kidney antibodies. MONTE BLAU,* EUGENE D. DAY* AND DAVID PRESSMAN. *Roswell Park Memorial Inst., Buffalo.*

9:45 **2002.** Measurement of antigen-combining capacity of antiserums as determined by ammonium sulfate precipitation of I^{131} antigen after complex formation with antibody. RICHARD S. FARR. *Univ. of Chicago.*

10:00 **2003.** Distribution and nature of antibodies against horse serum produced in rabbits, rats and guinea pigs. IRVING L. SPAR,* WILLIAM F. BALE, DOLORES E. WOLFE* AND WILLIAM DEWEY.* *Univ. of Rochester School of Medicine.* (Physiol.)

10:15 **2004.** Production of autoimmune bodies to heart tissue in rabbits inoculated with streptococcal cultures: nature and histologic localization of reactive antigen. MELVIN H. KAPLAN (intr. by ALBERT H. COONS). *Children's Med. Ctr. and Harvard Med. School.*

10:30 **2005.** Antibody production in organ culture. KINGSLEY M. STEVENS AND JOHN M. MCKENNA.* *Sharp and Dohme, Div. of Merck and Co., West Point, Pa.*

10:45 **2006.** Mechanisms of in vitro synthesis of antibody by tissues of immunized animals. BENJAMIN WOLF* AND ABRAM B. STAVITSKY. *Western Reserve Univ. School of Medicine.*

11:00 **2007.** Mechanisms of antibody synthesis by transplanted cells. ABRAM B. STAVITSKY. *Western Reserve Univ. School of Medicine.*

11:15 **2008.** Transfer of lymph node cells incubated in vitro with filtrates of trypsin-treated suspensions of Shigella paradysenteriae. T. N. HARRIS, SUSANNA HARRIS,* CLIFTON A. OGBURN* AND MIRIAM B. FARBER.* *Children's Hosp. of Philadelphia and Univ. of Pennsylvania.*

Wednesday Afternoon, April 18, 1:15 p.m.

Influenza and APC (ARD) Viruses

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 20

Chairman: Thomas Francis, Jr.

1:15 **2009.** Properties of an early host-virus complex. NAKAO ISHIDA* AND W. WILBUR ACKERMANN. *Univ. of Michigan School of Public Health.*

1:30 **2010.** Cortisone modification of the dynamics of influenza virus increase. EDWIN D. KILBOURNE. *Cornell Univ. Med. College.*

1:45 **2011.** Characteristics of a series of antigenic variants of influenza A virus. DOROTHY HAMRE, PAUL GERBER* AND CLAYTON G. LOOSLI.* *Univ. of Chicago.*

2:00 **2012.** Immunologic significance of antigenic differences among strains of influenza virus isolated during the same epidemic. KEITH E. JENSEN. *Univ. of Michigan.*

2:15 **2013.** Exploration of applicability of the 'Doctrine of original antigenic sin' to influenza B by determining antibody response after vaccination with monovalent type B influenza virus vaccines. ALBERT V. HENNESSY AND FRED M. DAVENPORT. *Univ. of Michigan.*

2:30 **2014.** Evaluation of the efficacy of influenza virus vaccine in 1955. FRED M. DAVENPORT AND ALBERT V. HENNESSY. *Univ. of Michigan.*

2:45 **2015.** Electron microscopic studies of structure and development of influenza virus. HARRY M. ROSE, COUNCILMAN MORGAN* AND DAN H. MOORE.* *Columbia Univ. College of Physicians and Surgeons.*

3:00 **2016.** Structure and development of ARD(APC) virus in HeLa cells examined in the electron microscope. COUNCILMAN MORGAN,* CALDERON HOWE, HARRY M. ROSE AND DAN H. MOORE.* *Columbia Univ. College of Physicians and Surgeons.*

3:15 **2017.** Association of APC virus type 8 with epidemic keratoconjunctivitis. E. JAWETZ, L. HANNA,* P. THYGESON,* A. NICHOLAS* AND S. J. KIMURA.* *Univ. of California School of Medicine.*

3:30 **2018.** Etiologic studies of febrile respiratory disease in navy recruits with emphasis on APC viruses. R. L. WOOLRIDGE, T. GRAYSTON, J. E. WHITESIDE AND M. FRIEDMAN (intr. by C. G. LOOSLI). *Naval Med. Research Unit #4, Great Lakes, Univ. of Chicago.* (Pathol.)

Antigens and Antibodies IV

WEDNESDAY, 1:15 P.M.—CONVENTION HALL, ROOM 21

Chairman: Manfred O. Mayer

1:15 **2019.** Preparation of hog thyroglobulin. SIDNEY SHULMAN (intr. by ERNEST WITEBSKY). *Univ. of Buffalo School of Medicine.*

1:30 **2020.** Production of specific rabbit thyroid antibodies in the rabbit. NOEL R. ROSE* AND ERNEST WITEBSKY. *Univ. of Buffalo School of Medicine.*

1:45 **2021.** Antigen-antibody reactions in agar. III. Rate of change of band migration with antigen concentration. J. C. NEFF* AND E. L. BECKER. *Walter Reed Army Inst. of Research.*

2:00 **2022.** Antigenicity of polyvinylpyrrolidone. PAUL H. MAURER. *Univ. of Pittsburgh School of Medicine.*

2:15 **2023.** Immunochemical studies of kinetics of monomerization of human serum albumin mercury-dimer. LAWRENCE LEVINE, ROBERT SMITH AND RAY K. BROWN (intr. by GILBERT DALLDORF). *New York State Dept. of Health.*

2:30 **2024.** Immunochemical studies with hemocyanin. CHARLES A. LEONE. *Argonne Natl. Lab., Lemont, Ill.*

2:45 **2025.** Persistence and fate of S^{35}-labeled antigen in livers of normal and immunized rabbits. JUSTINE S. GARVEY* AND DAN H. CAMPBELL. *California Inst. of Technology, Pasadena.*

3:00 **2026.** Orosomucoid and protein content of nasal polyps. S. SILVERBERG* AND H. R. CATCHPOLE. *Univ. of Illinois College of Medicine.* (Physiol.)

3:15 **2027.** Different intensities of Arthus reaction in different skin areas of rabbits. REUBEN L. KAHN, IRVING M. BLATT* AND SUN HYOO KIMM.* *Univ. Hosp., Univ. of Michigan.*

3:30 **2028.** Production of delayed sensitivity to protein without detectable circulating antibody. J. W. UHR,* S. B. SALVIN AND A. M. PAPPENHEIMER, JR. *New York Univ. College of Medicine.*

Wednesday Evening, April 18, 8:00 p.m.

Symposium: Studies of Antibody Formation Following Cellular Transfer

WEDNESDAY, 8:00 P.M.—CONVENTION HALL, ROOM 20

Chairman: Merrill W. Chase

2029. Quantity and quality of diphtheria antitoxin appearing after transfer of cells taken from immunized animals. MERRILL W. CHASE AND ODD A. WAGER.* *Rockefeller Inst. for Med. Research and New York Univ. School of Medicine.*

2030. Formation of agglutinins of Shigella paradysenteriae by transfer of lymph node cells. T. N. HARRIS AND SUSANNA HARRIS.* *Children's Hosp. of Philadelphia and Univ. of Pennsylvania.*

2031. Quantitation of antibody synthesis during secondary response following transfer of cells. FRANK J. DIXON, JAMES C. ROBERTS* AND WILLIAM O. WEIGLE.* *Univ. of Pittsburgh School of Medicine.*

2032. Mechanism of secondary antibody response to proteins. ABRAM B. STAVITSKY. *Western Reserve Univ. School of Medicine.*

Exhibits

MAIN ARENA, CONVENTION HALL

Monday–Thursday, April 16–19, 8:45 A.M.–6:00 P.M.

Friday, April 20, 8:45 A.M.–1:00 P.M. Lounges are provided among the exhibits for those who wish to make appointments; these lounges are designated by number in the floor plan on page 751.

Thursday Morning, April 19, 9:00 a.m.

Immunization

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM 20

Chairman: Geoffrey Edsall

9:00 **2033.** Anti-rabies vaccination of man with HEP flury virus. JOHN P. FOX, DONALD P. CONWELL* AND PHYLLIS GERHARDT.* *Tulane Univ. School of Medicine.*

9:15 **2034.** Immunization against smallpox. E. B. JACKSON, B. L. ELISBERG* AND J. E. SMADEL. *Walter Reed Army Med. Ctr.*

9:30 **2035.** Experimental typhoid fever in chimpanzees. II. Prophylactic immunization. SIDNEY GAINES,* MAURICE LANDY, GEOFFREY EDSALL AND ROBERT TRAPANI.* *Walter Reed Army Inst. of Research.*

9:45 **2036.** Experimental typhoid fever in chimpanzees. III. Pathogenesis. HELMUTH SPRINZ,* MAURICE LANDY, SIDNEY GAINES* AND GEOFFREY EDSALL. *Walter Reed Army Med. Ctr.*

10:00 **2037.** Increased resistance to infection developed rapidly after administration of bacterial lipopolysaccharides. MAURICE LANDY. *Walter Reed Army Inst. of Research.*

10:15 **2038.** Serum glycoprotein concentrations during anamnestic response. HENRY E. WEIMER AND ERIC L. NELSON (intr. by A. F. RASMUSSEN, JR.). *Univ. of California Med. Ctr., Los Angeles.*

10:30 **2039.** Increased susceptibility of mice to bacterial endotoxins induced by pertussis vaccine. ROBERT S. ABERNATHY* AND WESLEY W. SPINK. *Univ. of Minnesota Med. School.*

10:45 **2040.** Hemopoietic response in mice injected with pertussis vaccine. I. A. PARFENTJEV AND E. E. MANUELIDIS.* *Yale Univ. School of Medicine.*

11:00 **2041.** Single-visit immunization with emulsified pollen antigen (Freund's adjuvant). MARY H. LOVELESS. *Cornell Univ. Med. College.*

Blood Groups; Toxins

THURSDAY, 9:00 A.M.—CONVENTION HALL, ROOM 21

Chairman: William C. Boyd

9:00 **2042.** Behavior in the Coombs test of anti-A and anti-B produced by immunization with various A and B substances and by heterospecific pregnancy. FREDERIC C. MCDUFFIE* AND ELVIN A. KABAT. *Columbia Univ. College of Physicians and Surgeons and Neurological Inst.*

9:15 **2043.** Action of Clostridium tertium enzymes on blood group substances. CALDERON HOWE, JOHN D. MACLENNAN* AND ELVIN A. KABAT. *Columbia Univ. College of Physicians and Surgeons and Neurological Inst.*

9:30 **2044.** Quantitative studies in hemagglutination. III. Further characterization of reaction of antigens and antibodies of human isohemagglutinins. M. H. WILKIE (intr. by E. L. BECKER). *Walter Reed Army Inst. of Research.*

9:45 **2045.** Neonatal serologic diagnosis of hemolytic disease of the newborn (HDN) caused by ABO incompatibility. KURT STERN, ISRAEL DAVIDSOHN AND ARNOLD BUZNITSKY.* *Chicago Med. School and Mt. Sinai Med. Research Fndn., Chicago.*

10:00 **2046.** Differential properties in vitro of natural and immune anti-A and anti-B isoagglutinins. HAROLD GOODMAN,* ISRAEL DAVIDSOHN AND KURT STERN. *Chicago Med. School and Mt. Sinai Med. Research Fndn., Chicago.*

10:15 **2047.** Blood group active substances of plant origin. GEORG F. SPRINGER (intr. by M. G. SEVAG). *Univ. of Pennsylvania.*

10:30 **2048.** Comparison between extracellular products of toxigenic and nontoxigenic diphtheria bacilli. M. YONEDA* AND A. M. PAPPENHEIMER, JR. *New York Univ. College of Medicine.*

10:45 **2049.** Immunologic study of rabbits with diphtheritic polyneuritis. BYRON H. WAKSMAN, RAYMOND D. ADAMS* AND HERBERT C. MANSMANN, JR.* *Harvard Med. School and Massachusetts General Hosp.*

11:00 **2050.** Necrotizing action of adrenaline in endotoxin-treated animals. LEWIS THOMAS. *New York Univ.-Bellevue Med. Ctr.*

11:15 **2051.** Bacterial toxins: toxins of pathogenic Escherichia coli. DANIEL A. BOROFF AND FRANCO RINALDI.* *New England Inst. for Med. Research, Ridgefield, Conn. and Galesburg State Research Hosp., Galesburg, Ill.*

11:30 **2052.** Action of plague toxin on diphosphopyridine nucleotide. SAMUEL J. AJL, JAMES RUST, JR., JEANETTE WOEBKE AND DONALD H. HUNTER (intr. by JOSEPH E. SMADEL). *Walter Reed Army Inst. of Research.*

Thursday Afternoon, April 19, 1:15 p.m.

Bacteriology: General

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM 20

Chairman: Jules Freund

1:15 **2053.** Effect of triiodothyronine and propyl thiouracil on native resistance to tuberculosis. MAX B. LURIE AND GEORGE S. NINOS.* *Henry Phipps Inst., Univ. of Pennsylvania.*

1:30 **2054.** New tuberculostatic protein isolated from bovine spleen. QUENTIN N. MYRVIK. *Univ. of Virginia School of Medicine.*

1:45 **2055.** Infectivity of group A streptococcus. A. F. COBURN, H. D. SLADE* AND J. M. NOLAN.* *Rheumatic Fever Research Inst., Chicago.*

2:00 **2056.** Mutual inhibition of streptococcus mitis and streptococcus pyogenes group A. THEODOR ROSEBURY, JACQUELYN R. ZEITINGER* AND JOSEPH J. MOGAB.* *Washington Univ. School of Dentistry.*

2:15 **2057.** Mechanism of induced refractoriness of mice to streptolysin O. ROBERT ROWEN* AND ALAN W. BERNHEIMER. *New York Univ. College of Medicine.*

2:30 **2058.** Reactivity of various media to production of staphylokinase. EARL B. GERHEIM AND HOWARD R. MAXWELL.* *Sherman Labs., Detroit.*

2:45 **2059.** Uptake of transforming DNA and its penetration into Hemophilus influenzae. SOL H. GOODGAL AND ROGER M. HERRIOTT (intr. by B. F. CHOW). *Johns Hopkins School of Hygiene and Public Health.*

3:00 **2060.** Inhibition of growth of pleuropneumonia-like organisms by anticorynebacterium serums. RUTH G. WITTLER (intr. by JOHN F. KENT). *Walter Reed Army Inst. of Research.*

3:15 **2061.** Immunological aspects of bacteriophage-host cell interaction. L. J. TOLMACH (intr. by JOHN R. CANN). *Univ. of Colorado Med. Ctr.*

Complement, Properdin

THURSDAY, 1:15 P.M.—CONVENTION HALL, ROOM 21

Chairman: Elvin A. Kabat

1:15 **2062.** Nature of the first component of complement. E. L. BECKER. *Walter Reed Army Inst. of Research.*

1:30 **2063.** Deterioration of intermediate complexes between complement and sensitized sheep erythrocytes. MYRON A. LEON (intr. by S. S. HUDACK). *Saint Luke's Hosp., Cleveland.* (Pathol.)

1:45 **2064.** Inhibitors of complement activity. W. P. CUSHMAN* AND E. L. BECKER. *Walter Reed Army Inst. of Research.*

2:00 **2065.** Release of I^{131} complement from immune precipitates. WILLIAM O. WEIGLE* AND PAUL H. MAURER. *Univ. of Pittsburgh School of Medicine.*

2:15 **2066.** Fixation of complement by sensitized erythrocytes. O. J. PLESCIA AND K. AMIRAIAN (intr. by M. HEIDELBERGER). *Rutgers Univ.*

2:30 **2067.** Binding of S^{35}-complement. NATHAN PENN,* MUTAHHAR YENSON* AND FELIX HAUROWITZ. *Indiana Univ., Bloomington.*

2:45 **2068.** Factors influencing hemolytic action of complement. DAVID L. MCVICKAR (intr. by A. F. RASMUSSEN, JR.). *Univ. of California School of Medicine, Los Angeles.*

3:00 **2069.** Magnesium in the inhibition of Newcastle disease virus by the properdin system. RALPH J. WEDGWOOD,* HAROLD S. GINSBERG AND LOUIS PILLEMER. *Western Reserve Univ. School of Medicine.*

3:15 **2070.** Fate of immune response in mice to enteric vaccines in relation to properdin levels. GRACE L. MCCALLUM,* HOWARD J. BOHNER AND GEOFFREY EDSALL. *Walter Reed Army Inst. of Research.*

3:30 **2071.** Relationship of toxoplasma antibody activator to the properdin system. HARRY A. FELDMAN, LOUIS PILLEMER AND LOUISE T. MILLER.* *State Univ. of New York, Upstate Med. Ctr., Syracuse, and Western Reserve Univ.*

PAPERS READ BY TITLE

2072. Antigenic components of immune sera present in specific precipitates. FRANK L. ADLER. *Public Health Research Inst. of the City of New York.*

2072a. Changed susceptibility to viral infection in ascites tumor cells of the same origin. HILARY KOPROWSKI, GAIL THEIS* AND ROBERT LOVE.* *Viral and Rickettsial Section, American Cyanamid Co., Pearl River, N. Y.*

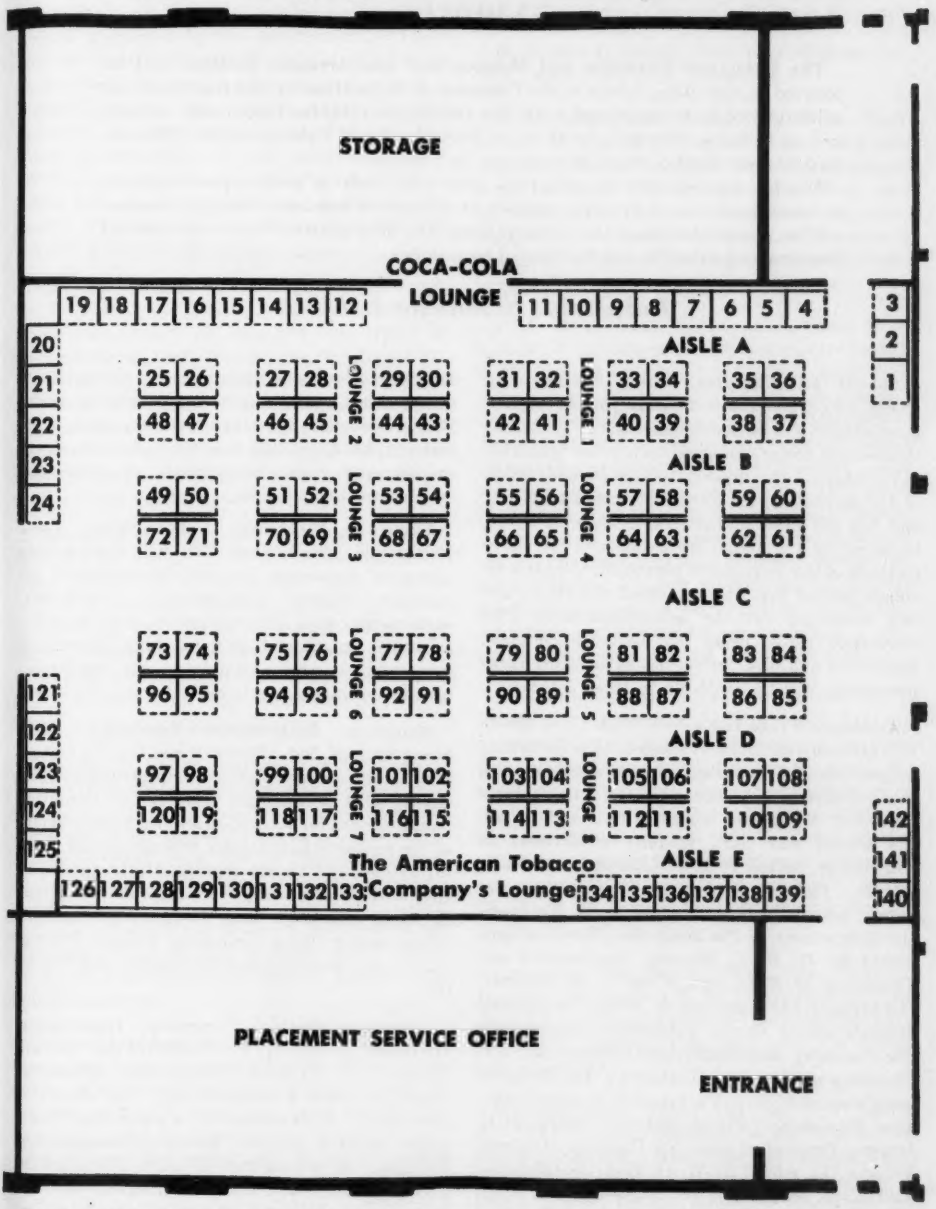
2073. Cytoplasmic inclusions of HeLa cells in tissue culture. BERYL T. MASON,* HERMAN C. MASON, MURRAY FRANKLIN.* *Univ. of Illnois College of Medicine, Illinois State Psychopathic Inst. and Cook County Hosp., Chicago.*

2074. Growth of Japanese B virus (JBE) in HeLa cell cultures and inhibition of poliomyelitis (Saukett) virus. HERMAN C. MASON. *Illinois State Psychopathic Inst., Chicago.*

Special Functions

Tickets for group breakfasts, luncheons, dinners, Society dinners and activities scheduled by the Ladies Committee will be on sale at the Federation Ticket Desk in the Lobby of Convention Hall.

Floor Plan of Space Locations for Exhibits



Booths A–D are located along wall of Meeting Room D; Booths E–P are in the foyer outside Meeting Room C.

EXHIBITS

The Industrial Scientific and Member and Institutional Exhibits will be located in the Main Arena of the Convention Hall. Member and institutional exhibits will be interspersed with the industrial exhibits. Inspection periods are as follows: Monday, April 16 to Thursday April 19th, inclusive, 8:45 a.m. to 6:00 p.m.; Friday, April 20, 8:45 a.m. to 1:00 p.m.

For the convenience of scientists who may wish to make appointments, arrange conferences or enjoy periods of relaxation between sessions, lounges will be provided around the exhibits floor. The floor plan will serve as a guide; lounges and exhibits can be located by number.

Industrial Scientific Exhibits

Abbott Laboratories, North Chicago, Ill. (*Booth 108*). Their Radio-Pharmaceutical Department exhibit will be devoted essentially to demonstrations of newer biological techniques involving radioisotopes. In addition to the demonstration of the techniques for blood volumes with RISA, and red cell mass and red survicals with Cr-51, there will be a firsthand presentation of the newer methods of the diagnosis of pernicious anemia with cobalt-labeled B_{12}. Also presented will be a quite new technique for the determination of PBI conversion ratios using ion exchange columns. Literature and descriptive matter covering these procedures will be available to those interested.

Academic Press Inc., New York City, (*Booth 113*) extends a cordial invitation to all scientists to inspect new and forthcoming books, and to discuss the publication schedule with the Press' representative. Among the works to be exhibited are the second and third volumes of *Methods in Enzymology*, edited by S. P. Colowick and N. O. Kaplan; *Physical Techniques in Biological Research*, edited by G. Oster and A. W. Pollister; the fifth volume of *The Alkaloids* (*Pharmacology*), edited by R. H. F. Manske; *Biochemistry and Physiology of Bone*, edited by G. H. Bourne; Heilbrunn's *The Dynamics of Living Protoplasm;* Kabat's *Blood Group Substances;* Gustavson's *The Chemistry And Reactivity of Collagen;* and *The Chemistry of Tanning;* Montagna's *The Structure and Function of Skin*. Visitors will be able to preview *Physiology of Fishes*, edited by Margaret E. Brown; *Physical Methods in Chemical Analysis*, Volume III, edited by W. G. Berl; *Ion Exchange Technology*, edited by F. C. Nachod and J. Schubert, and some of the new volumes of the serial publications. Sample reprints of the Press' affiliated firm, **Johnson Reprint Corporation,** will also be on display.

Aloe Scientific, St. Louis, Mo. (*Booths 81 and 82*) will exhibit the latest paper strip electrophoresis apparatus and associated equipment, the model DK-2 Beckman Spectrophotometer, new chromatographic apparatus, fraction collectors, evaporators and other instruments of important interest to the biological sciences.

American Electronic Laboratories, Inc., Philadelphia, Pa. (*Booth 100*) will demonstrate advanced apparatus for the electromedical researcher. Modern high-accuracy stimulators, oscilloscopes with linear sweeps to three minutes, stimulus isolators, high-gain, high impedance d.c. amplifiers, photic stimulators, etc. are typical of the operating equipment to be displayed.

American Instrument Company, Inc., Silver Springs, Md. (*Booths 75 and 76*) will feature their new Aminco-Bowman Spectrophotofluorometer that permits the isolation of unlimited bands of light for activation and the measurement of the resulting fluorescence throughout the near-ultraviolet and visible regions. Other apparatus shown will be the rotary Warburg, electrophoresis, Kjeldahl digestion and distillation, Jonnard refractometer, light scattering, pumps, Dubnoff centrifuge, freezing-point depression and freeze-dry.

American Optical Company, Instrument Division, Buffalo, N. Y. (*Booths 117 and 118*) will feature the AO-Baker interference microscope which embodies a comparatively new theory in microscopy. It is essentially a polarizing microscope which is modified into a two-beam interferometer to resolve optical path difference for precise examination and measurement of semi-transparent specimens. Company representatives will also demonstrate the new AO micromanipulator and photomicrographic camera.

American Sterilizer Company, Erie, Pa. (*Booth 109*).

American Tobacco Company, Research Laboratory, Richmond, Va. (*Lounge*) will demonstrate a completely automatic air flow meter. This is another in the line of unique quality control devices developed by its Instrument Division. This meter utilizes standard type slack diaphragm gauges insensitive to temperature changes and is designed so that the vacuum applied to the cigarette is automatically controlled and the volume of air passing through it is read directly. Errors encountered in manually-adjusted instruments are eliminated, resulting in ever closer control of quality in Lucky Strike, Pall Mall and Herbert Tareyton cigarettes.

Applied Physics Corporation, Pasadena, Calif. (*Booth 120*). The Cary recording spectrophotometer, Model 14, and the new Model 31 Cary vibrating reed electrometer will be shown. The Model 14 provides highly accurate automatic recording of absorption, reflection, fluorescence and flame spectra in the near infrared, visible and ultraviolet—down to 1860 Å. The Model 31 electrometer makes possible C^{14} assay with increased accuracy and economy.

Association of American University Presses, New Haven, Conn. (*Booth 51*). Each university press represented in the exhibit is a separate publishing company producing technical, medical and scholarly works as well as other books of vital interest. This joint exhibit enables you to see books from a number of the university presses and, if you so desire, to order them direct from the booth or from the publishing press.

Bausch & Lomb Optical Co., Rochester, N. Y. (*Booth 39*) will demonstrate the very popular Spectronic-20 colorimeter-spectrophotometer which uses a diffraction grating to produce monochromatic light from 375 to 950 millimicrons. Biological, polarizing and stereoscopic microscopes, as well as illuminators, interference filters, and allied products will be shown. All products are produced at the Bausch & Lomb plant, where quality is controlled from the raw glass to the finished product.

Bellco Glass Inc., Vineland, N. J. (*Booth 132*). Special emphasis is placed upon the Bellco Large Orifice pipette which was originally introduced at this meeting in 1954. Since then, many laboratories have instituted the pipettes as standard equipment for handling melted agar, transfer of tissue homogenates, etc. Also being shown are the Bellco line of fine quality standard pipettes and culture tubes, both plain and Color Coded. Being shown for the first time are sealable type culture dishes in various sizes, suitable for plaque studies in tissue culture. Other items shown are tissue grinders, the new Nephelo-Culture flask for turbidimetric measurements, and samples of specially graduated pipettes made to order. We invite your requests for specially made glassware.

Blakiston Division, McGraw-Hill Book Co., Inc., New York, N. Y. (*Booth 60*).

S. Blickman, Inc., Weehawken, N. J. (*Booths 67 and 68*) will exhibit stainless steel microbiological enclosures equipped with microbiological filter canisters. The canisters are fitted with electric heating elements to destroy organisms trapped in the filters. This equipment is specially designed for the safe handling of viruses and other potentially dangerous microorganisms.

C. A. Brinkmann & Company, Great Neck, L. I., N. Y. (*Booths 69 and 70*) will feature various new pieces of equipment not shown heretofore. Among them will be a new line of high accuracy line-operated research pH meters by Metrohm of Switzerland and a coulometer from the same source, also of novel design. Furthermore a new polarographic recording apparatus, the entire instrument including the recorder being hardly larger than an average typewriter. Also on display will be the new Sartorius Projecta double pan speed balance, heating microscope for melting point determinations and Bender & Hobein equipment for electrophoresis including a continuous separator and an automatic scanner.

Bronwill Scientific, Inc., Rochester, N. Y. (*Booth 45*) will exhibit the Model UV Warburg apparatus and the Model UVL Warburg apparatus with lighter bank for photosynthetic work; the constant temperature circulator, which is a combination circulating pump-heater and thermoregulator in one compact unit; a Teflon stirring gland; water-cooled 1-inch diffusion pump and the new homogenizer-emulsifier polytron Model TE-45 and the bottom mounted Waring Blendor modification of this polytron.

Coca-Cola Company, Atlanta, Ga. (*Lounge*). Ice-cold Coca-Cola will be served through the courtesy and cooperation of the Atlantic City Coca-Cola Bottling Company and The Coca-Cola Company.

Corning Glass Works, Corning, N. Y. (*Booth 62*). The Pyrex brand labware display includes two new pipettes, the VDRL type, for syphilis tests, and the Taper-Top serological type. Other Pyrex brand labware for the biological laboratory include centrifuge tubes, chromatographic tubes, culture tubes, fritted filters, Petri dishes and tissue grinders. Also on display: Corning brand cover glasses.

Custom Engineering and Development Co., St. Louis, Mo. (*Booth 59*) will feature a continuous reading gaseous nitrogen meter. A gas flowmeter using a differential transformer transducer will also be displayed.

Detectolab, Inc., Chicago, Ill. (*Booth 11*) will exhibit radioisotope counting equipment including scaling circuits, count rate meters and pulse height analyzers. Demonstration of compact gamma ray spectrometer that is low cost and a scintillation head that has heretofore unobtainable collimating ability for scanning and tumor localization. The equipment is in operation with radioisotopes that are normally used.

Difco Laboratories, Detroit, Mich. (*Booth 92*) will feature clinical laboratory reagents, culture media and reagents for microbiological procedures. This will include media for isolation and identification of pathogenic bacteria and fungi, media for tissue culture and virus culture, bacto-sensitivity disks, bacto-streptolysin O reagent, bacto-guinea-pig kidney antigen, bacto-beef cell antigen, bacto-penase, cardiolipin-lecithin and lipoidal antigens for the serodiagnosis of syphilis, bacto-adjuvants, bacto-thromboplastin, bacto-cephalin cholesterol antigen, bacto-thymol turbidity reagent and phenolsulfonphthalein.

Eberbach Corporation, Ann Arbor, Mich. (*Booth 88*) will feature rotary and reciprocating laboratory shakers. These shakers provide constant operating speed at any setting of the speed control and impart uniform physical motion to all containers being agitated. These factors are essential where controlled laboratory procedures are desired. Eberbach 'hollow spindle' laboratory stirrers and microscope slide storage cabinets are on display.

E-C Apparatus Company, New York City (*Booths 97 and 98*) will exhibit the following: new apparatus for the analysis and fractionation of chemical and biological materials: countercurrent fractionator for quantitative separations in two-phase solvent systems; electroconvection apparatus for preparation of pure proteins; electrophoresis apparatus for either starch block or paper strip, with provision for simultaneously experimenting at three different pH values and with water-cooled pressure plates.

Edin Company, Inc., Worcester, Mass. (*Booth 48*) will exhibit instrumentation systems for making direct ink recordings of almost any physiological phenomena. Featured will be various types of amplifiers, multi-channel oscillographs and transducers that may be assembled in numerous combinations. Special research equipment may be supplied from stock units at standard prices in expandable consolettes. Of unusual interest is the new Edin automatic low frequency wave analyzer which features unusual stability, interchangeable band-pass filters and the latest electronic circuits and transistor-type components.

Electric Hotpack Co., Inc., Philadelphia, Pa. (*Booth 102*).

Encyclopaedia Britannica, Philadelphia, Pa. (*Booth 104*). A special exhibit offer will be available during the 5-day period of the meeting. It will include the New 1956 Edition of Encyclopaedia Britannica, the Britannica Seven Language Dictionary, the Unabridged Edition of the Britannica World Atlas together with two services of unusual importance and value.

Ercona Corporation, New York City (*Booth 33*) will display and demonstrate the latest developments in microscopes and optical measuring instruments from the famous Carl Zeiss Jena Optical Works. The exhibit will feature the unique 'Lumipan' Research Microscope with built-in pancratic illuminating system permitting employment of all phase contrast objectives with one annular stop; the new 'Citoplast' stereomicroscope with five built-in objectives; the laboratory interferometer for gas and liquid analysis with considerably higher measuring accuracy than the most exacting refractometers; the circle polarimeter; photomicrographic apparatus and a number of other outstanding Zeiss instruments. Inquiries are invited concerning recent Zeiss developments in Schlieren optics, electron microscopy, electrophoresis apparatus, quartz optics and spectrophotometry.

Fisher Scientific Company, Pittsburgh, Pa. (*Booth 50*) will exhibit the Fisher-Gulf partitioner, a new gas-liquid partition apparatus; the Fisher recordall, an all purpose laboratory recorder; Spinco electrophoresis apparatus; Gram-atic balances; and other laboratory aids.

J. Melvin Freed, Inc. Perkasie, Pa. (*Booth 38*) will exhibit pre-cleaned microscope slides that afford uniform dispersion for blood smears, aqueous bacteriological smears and absolute adhesion of tissue sections. Handy slide container that enables individual slide to be picked from box. Various concavity slides of fine optical quality. Corning brand optical cover glass, clear, flat, uniform in thickness, water white in color.

General Chemical Division, Allied Chemical & Dye Corp., New York City. (*Booth 119*).

Graf-Apsco Company, Chicago, Ill. (*Booth 99*). If you have any microscope troubles, it would be well to stop at the booth of the Graf-Apsco Co.,

America's leading microscope repair house. Also exhibited are new Graf-Apsco microscopes with exclusive features designed into the stand to keep the instrument in good working order indefinitely. If you do not know what to do with your obsolete microscope, the Graf-Apsco Co. will buy it for cash or accept it in trade. Be sure to see this interesting exhibit.

Grass Instrument Company, Quincy, Mass. (*Booths 55 and 56*) will exhibit its instruments designed for electrophysiological research. Among these are the Model III-D electroencephalograph and associated direct writing equipment for recording of many physiological variables. Both a.c. and d.c. preamplifiers, input probes, stimulators, oscilloscope camera and an instrument table to house these units will be shown. The Grass line of strain gauge transducers will be displayed. Competent personnel will be on hand to discuss problems involving the application and use of these instruments in the fields of physiology, pharmacology, peripheral circulation, neurology and surgery.

Grune & Stratton, Inc. New York City. (*Booth 61*) invite you to visit their booth where you can examine a number of new books, among which are Brooks' *Excitability of the Heart;* Littman's *Cryptococcosis;* Tocantin's *Progress in Hematology, Vol. I;* Luisada's *Cardiac Pressures and Pulses;* Talbott's *Collagen Diseases;* Schwimmer's *The Role of Algae and Planckton in Medicine; A.M.A. Scientific Exhibits, 1955;* Nieburg's *Cytologic Technics for Office and Clinic;* Bessis' *Cytology of the Blood and Blood-Forming Organs;* and many other practical books of special value to the investigator.

William J. Hacker & Co., Inc., New York City. (*Booth 25*) will feature a complete range of Reichert instruments, including two new research microscopes of very advanced design; the Anoptral phase equipment for enhanced contrast; a unique microprojector housing microscope, illuminator and screen; equipment for fluorescence microscopy; cinemicrographic work, time lapse arrangement and photo-electric galvanometer.

Heinicke Instruments, Hollywood, Fla. (*Booth 1*) will exhibit the following: patented laboratory glassware washers (three sizes); cagewashers for steam washing experimental animal cages; a combination glassware-cagewasher; Heinicke cyclone stainless steel pump for corrosive applications. Effective washing, rinsing, and distilled water rinsing includes capillary pipettes (which will be demonstrated) up to 5-gallon bottles. Dr. Kurt J. Heinicke, Jane R. Heinicke, and Walter Burkhart will be in attendance.

Instrumentation Associates, New York City. (*Booth 101*). Introducing new concepts in pulmonary function testing—Pulmotest and Pulmo-Analyser: a complete compact lung function testing station for residual volumes, oxygen consumption (BMR) timed vital capacity, maximum breathing capacity and broncho-spirometry. Oxygen, CO_2 and helium concentration with accuracy up to .005%. Accessories for cardiopulmonary function: gas analysis. Biophysical and biochemical apparatus will also be shown.

International Equipment Company, Boston, Mass. (*Booth 80*) will exhibit two new model centrifuges; the PR-2 refrigerated centrifuge with increased versatility; new heads for the International Hemacrit microcapillary centrifuge; the International ultra-thin sectioning microtome; and numerous centrifuge accessories.

Interscience Publishers, Inc., New York City. (*Booth 40*) will feature Volume III of *Methods of Biochemical Analysis* edited by David Glick; the completely revised *Currents in Biochemical Research* edited by David E. Green, Volume XVII of *Advances in Enzymology* edited by F. F. Nord; and many other titles in the field of biochemistry. The complete 15-volume *Encyclopedia of Chemical Technology* will also be displayed.

Keystone Plastics Company, Media, Pa. (*Booth 44*).

Kimble Glass Company, Toledo, Ohio (*Booth 66*) will exhibit representative samples of its line of precision laboratory glassware. These samples will include flasks, cylinders, weighing bottles, centrifuge tubes, thermometers, and pipettes. Special display boards will feature Kimble's new serological pipettes. Literature offered will include the general catalog, various stuffers and *The Care and Handling of Glass Volumetric Apparatus.*

Kontes Glass Company, Vineland, N. J. (*Booth 24*) is exhibiting for the first time their new complete kit of Bantam-Ware small organic glass apparatus. The kit is completely self contained with sufficient components to enable a variety of chemical operations. Equipment is also provided for supporting, clamping, heating, agitating and storing. Also featured is the Company's line of tissue culture glassware.

Laboratory Glass Supply Company, New York City. (*Booth 89*).

Lea & Febiger, Philadelphia, Pa. (*Booth 65*) will display their books in the biological sciences. Recent publications available for inspection include: *Animal Agents and Vectors of Human Diseases* by Faust; *Textbook of Pathology* by Herbut; *Textbook of Neurology* by Merritt; *Medical*

and Public Health Laboratory Methods by Simmons and Gentzkow; *Clinical Toxicology* by Thienes and Haley; *Modern Nutrition in Health and Disease* by Wohl and Goodhart; *Chlorpromazine*, a symposium of Smith, Kline & French; and the new 26th edition of *Gray's Anatomy*.

E. Leitz, Inc., New York City (*Booth 35*) will show the following equipment: new inverted Panphot microscope, new ultra-thin sectioning microtome, new Leitz freezing microtome, Dialux microscope with new high contrast objectives including special water immersion objectives; special universal microscope, UAM, including accessories for polarized light; micro-manipulator, fluorescence equipment and standard laboratory and medical type microscopes.

Lourdes Instrument Corp., Brooklyn, N. Y. (*Booth 26*) will display the latest developments in laboratory high speed centrifuges. Stop in and see the new Model SL with its 1500-cc capacity volume rotor which offers forces five times greater than comparable volume centrifuges. Also see the new unique design 12,000 rpm swinging cup rotor used for zonal separation as well as the Models AA, AB, and AT centrifuges which offer 400-cc capacity, 16,500 rpm and forces to 34,800 *g*. The Lourdes all-purpose multi-mixer, unsurpassed for sealed mixing and disintegration, will also be on display.

E. Machlett & Son, New York City (*Booths 7 and 8*). The latest advances in freeze drying are exemplified in the unique histological "99" and Bio-Dryer. Together with these new laboratory tools the well-known VirTis "23" and "45" homogenizers reduce homogenization procedures tremendously. Featured also is the automatic Rotovap film distilling apparatus which eliminates bumping and frothing.

Macmillan Company, New York City (*Booth 37*) cordially invites you to visit its exhibit booth, where many outstanding titles in scientific and medical literature will be on display. Be sure to see the recently published *Textbook of Pharmacognosy* by Ferguson.

Josiah Macy, Jr. Foundation, New York City (*Booths 121 and 122*). The *Transactions* of the Conference Program, which are the nearly verbatim reports of multidiscipline two-day conferences, will be on display for your perusal. These books are designed to give the reader an insight into the problems of communication and integration between related disciplines and present extensive new data in each of the fields represented. New series published during the current year cover *Group Processes*, *Neuropharmacology* and *Polysaccharides in Biology*.

Medcraft Electronic Corp., Babylon, N. Y. (*Booth 20*) will display their new electromyograph which presents the 'slow play-back' technique of presenting data. Other instruments to be shown will include preamplifiers, stimulators, and oscilloscopes. Qualified personnel to explain and demonstrate any of the instruments will be on hand at all times.

Metro Industries, Long Island City, N. Y. (*Booth 91*) will display the actophotometer, a recording instrument for measuring the activity of small animals. Also featured will be the new unitized Metroware laboratory, polyethylene equipment and improved models of the photoelectric tensometer, coronary perfusion apparatus, variable-speed constant-rate infusion pump, and glass capsule manometer.

Microbiological Associates, Inc. Bethesda, Md. (*Booth 34*) will display a complete line of freshly prepared tissue cultures in flasks and tubes. Living cells *in vitro* can be observed. Media and reagents for all tissue culture operations and virus propagation, including antisera and antigens, will be exhibited. Also included will be a complete line of nutrient and maintenance solutions.

Microchemical Specialities Company, Berkeley, Calif. (*Booth 49*) will demonstrate the newest Karler series of continuous-flow electrophoretic or electrochromatographic apparatus, including a large vertical-curtain preparative instrument, laboratory preparative horizontal-curtain types and microscale horizontal-curtain apparatus. Microchemical will display its latest fraction collector, a new series of motor-driven syringes, a new recording paper-strip densitometer and a variety of ultramicro analytical devices.

C. V. Mosby Company, St. Louis, Mo. (*Booth 85*) extends a cordial invitation, as you tour the exhibits, to visit their booth, where Mosby publications will be available for leisurely examination. Whatever your book needs for reference or teaching, their representatives in attendance will welcome an opportunity of discussing them with you.

National Aniline Division, Allied Chemical & Dye Corp., New York City (*Booth 86*). The Pharmaceutical Sales Department will present a new display which features color photomicrographs illustrating applications of some of the widely used biological stains sold by the company. The display also will call attention to the other types of products offered which include pharmaceutical chemicals, pH indicators, oxidation-reduction indicators, diazo salts and staining solutions.

National Drug Company, Philadelphia, Pa. (*Booth 90*). The exhibit illustrates the laboratory background behind the clinical use of the enzyme trypsin. It consists of a series of pictures illustrating the laboratory findings, together with explanations of the significance of the findings.

National Instrument Laboratories, Inc., Riverdale, Md. (*Booth 115*). Shown for the first time will be several new instruments developed in collaboration with leading biochemical and medical research centers: the N.I.L. heat-flow recorder for measuring changes in heat flow in the skin and bodies of humans and animals, a multi-unit rapid mechanical dialyzer and solubility apparatus, the new GME high-voltage electrophoresis apparatus, a complete and automatic laboratory for paper electrophoresis, and preparative electrophoresis equipment. Also on exhibit will be the well-known N.I.L. tensiometer for precise measurement of surface tension characteristics of organic materials and the N.I.L. high precision manometer.

New Brunswick Scientific Co., New Brunswick, N. J. (*Booth 52*) will have on display their rotary action water bath shaker, their reciprocating water bath shaker, their gyrotory shaker, their Model V shaker and their fermentor stand variable drive assembly. Several models of their fermentors will also be shown.

NRD Instrument Company, St. Louis, Mo. (*Booth 54*).

Nuclear Instrument and Chemical Corporation (Nuclear-Chicago), Chicago, Ill. (*Booth 77*) will feature a complete line of radioactive measuring instruments including an automatic sample changer, gas flow counter, Geiger and scintillation detectors, radiochromatographic equipment, scalers and count rate meters. Featured will be the radiation analyzer, a new instrument for gamma ray spectrometry used in connection with a scintillation detector and scaler or count rate meter.

Opplem Company, Inc., East Rutherford, N. J. (*Booth 31*) will have in operation the Galileo universal microscope with Opplem time lapse apparatus and Opplem tissue culture incubator. Also on exhibit will be stereoscopic wide-field long-working distance microscopes, special stands for microscopes, new research phase contrast microscopes, and a new precision nuclear track microscope for tracking in both large emulsion plates and autoradiographs.

Oxford University Press, Inc., New York City (*Booth 79*) cordially invite you to visit their exhibit booth where you will find on display many new important books in the fields of biology, physiology, surgery, general medicine. They especially invite you to leaf through the pages of Professor Homer W. Smith's new (1955) *Principles of Renal Physiology.*

Packard Instrument Company, La Grange, Ill. (*Booth 107*) will demonstrate their Tri-Carb liquid scintillation spectrometers in actual operation counting tritium, carbon-14 and other beta-emitting isotopes with liquid phosphors. Windowless and flo-window counters for counting solid samples of alpha and beta emitters will also be exhibited, as will the complete line of Packard automatic fraction collectors and accessory equipment for column chromatography.

Patwin Division, Patent Button Company, Waterbury, Conn. (*Booth 93*). In addition to their Patwin electro-polarizer, models C-1 and R-1, they will exhibit their new model FC flame photometer. This new photometer is a compact and efficient instrument designed for the special needs of clinical chemists. It is an internal standard instrument with three photoelectric cells which give maximum stability. It also features a rugged metal atomizer which is easy to clean. The two polarizers which they will exhibit will be the research and control units which have been nationally advertised to clinicians and pathologists during the past year.

Perkin-Elmer Corporation, Stamford, Conn. (*Booth 64*) will display the Perkin-Elmer Spectracord D* ultraviolet recorder with a new double monochromator with high resolution which reduces stray radiation to a negligible amount and greatly increases over-all performance. Also, the Model 38A Tiselius electrophoresis apparatus and Tri-Non gas analyzer.

Phipps & Bird, Inc., Richmond, Va. (*Booth 133*) will display a well rounded exhibit of instruments that should be of prime importance to those interested in the basic sciences. Instruments such as infusion pumps, freeze drying apparatus, micro-incinerators, kymographs, levers and a new pipette dryer will be a few that will be on exhibit. Make this booth a must during your stay at Atlantic City.

Photovolt Corporation, New York City (*Booth 53*) will exhibit their colorimeters, fluorescence meters, electronic photometers, multiplier photometers, densitometers and pH meters. A newly developed multiplier fluorescence meter will be exhibited. Special densitometers are for partition chromatography and paper electrophoresis; pH meters include a special model for blood pH tests.

Polarad Electronics Corporation, Long Island City, N. Y. (*Booth 87*) will exhibit equipment for research in the fields of chemistry, medicine, biology and physics. Some of the latest developments include an electron magnetic resonance spectrometer for studying both naturally occurring and induced free electron spins. A rotating cylinder viscometer has been developed for high precision measurements at very low stresses.

Precision Scientific Company, Chicago, Ill. (*Booths 12 and 13*) will show more than 300 full-color photographs, representing their entire line of laboratory apparatus, in their specially designed display booth. Many recent developments—new and redesigned apparatus—will be displayed, among them the vari-speed centricone, Senior Mag-Mix, Senior and Junior Titra-Lites, Senior ionograph, and Precision-Shell dual titrometer.

Radio Corporation of America, Camden, N. J. (*Booths 95 and 96*) will show the new EMU-3 electron microscope in operation. There will also be displayed a selection of micrographs of specimens of interest to biologists. RCA engineers will be in attendance to answer inquiries.

Ralston Purina Company, St. Louis, Mo. (*Booth 4*) will feature displays of two new Purina Chows for laboratory animals, Purina Monkey Chow and Purina Guinea Pig Chow. These are two important forward steps in laboratory animal nutrition as they are both complete feeds requiring no supplements or additives. In addition, the Purina booth will be manned by research personnel to answer any technical question you have concerning the feed and care of laboratory animals.

Sanborn Company, Cambridge, Mass. (*Booths 27 and 28*) will feature a continuous demonstration of varied equipment for visualization (via oscilloscope) and recording (direct-writing and photographic) of a wide range of biophysical phenomena. A major highlight will be the showing of the new Sanborn physiologic pressure transducer, which permits direct measurement of either differential or single pressures. Also included in the display will be Sanborn "150-Series" recording systems (available in 1-, 2-, 4-, 6- and 8-channel models); Sanborn Viso-Scopes, for routine monitoring and for operating room use; the electronic switch, for multi-channel viewing on a single Viso-Scope; the Sanborn vector system; the famous Viso-Cardiette and Metabulator, and other Sanborn equipment for cardiovascular diagnosis and research.

Sandoz Pharmaceuticals, Hanover, N. J. (*Booths 73 and 74*). Their exhibit is a progress report from the Research Department giving pertinent chemical and pharmacological information as well as therapeutic uses of Sandostene (histamine antagonist); Delysid (hallucinogen); BOL-148 (specific serotonin antagonist); Syntocinon (synthetic oxytocic) and Acylanid (cardiotonic).

W. B. Saunders Company, Philadelphia, Pa. (*Booth 63*) cordially invites you to visit its exhibit and inspect text and reference books in the fields of chemistry, anatomy, physiology, biochemistry, bacteriology, zoology, nutrition and pharmacology. See the following new books: Sodeman's *Pathologic Physiology*, 2nd edition; Spector's *Handbook of Toxicology;* Romer's *A Shorter Version of the Second Edition of the Vertebrate Body;* Conn's *Current Therapy*, 1956; Guyton's *Textbook of Medical Physiology;* Bland's *Clinical Recognition and Management of Disturbances of Body Fluids, 2nd Edition;* Diggs' *Morphology of Human Blood Cells* and Dodson's *Genetics.*

Schwarz Laboratories, Inc., Mount Vernon, N. Y. (*Booth 41*). Representatives will be on hand to answer questions about the more than 170 products of biochemical and medical importance now manufactured by Schwarz Laboratories, Inc. These include nucleic acid compounds, sulfhydryls, optically standardized amino acids, radiochemicals and clinical preparations. Featured will be new additions of importance in sulfhydryl studies, nucleotide and peptide synthesis, whole blood preservation and cancer research.

Scientific Industries, Inc. New York City (*Booth 141*) will feature working exhibits of three instruments: The Kopp-Natelson microgasometer—analyzes gases in body fluid using 0.03-ml sample; the Kopp micro-burette—accurately dispenses 0.001 ml with a capacity of 50 ml and easy-to-read subdivisions; the Cary thermometer—for clinical, animal and incubator use, metal stem with large dial, extremely accurate. Other items of interest will also be on display.

American Hospital Supply Corp., Evanston, Ill. (*Booth 142*). Scientific Products Division, will feature tissue culture apparatus, Berkeley radioisotope equipment, a complete line of disposable items including the new diSPo-Blade for microtomes, the remarkable new Trilyne machine-made blood diluting pipette, and many other new devices for the biological sciences.

Sigma Chemical Co., St. Louis, Mo. (*Booth 36*). Representatives will be present to discuss any problems incurred in the use of Sigma research chemicals. Suggestions for the preparation of unavailable compounds and for improving services are welcome. Persons interested in the

isolation of new cofactors are invited to visit their booth.

Smith, Kline & French Laboratories, Philadelphia, Pa. (*Booths 9 and 10*). The exhibit will be general and institutional in character. Specific products and facilities will not be displayed. Instead, the exhibit will attempt to define the 'typical SKF research scientist' and to illustrate the means by which his work and personality influence company policies as well as products.

Ivan Sorvall, Inc., Norwalk, Conn. (*Booths 71 and 72*) will display the Servall angle centrifuges, Servall Porter-Blum microtome, Servall refrigerated centrifuge, Servall high speed omnimixer, Sterling automatic pipette, Sjostrand ultramicrotome, LKB paper electrophoresis equipment, LKB moisture tester, LKB gas tester, LKB column electrophoresis apparatus and LKB chromatography composite column.

Spinco Division, Beckman Instruments, Inc., Belmont, Calif. (*Booths 110, 111 and 112*). Spinco products include laboratory instruments used in the molecular separation of materials for purposes of purification, identification and characterization. Instruments include the Model E analytical ultracentrifuge; the Model L preparative ultracentrifuge; the Model H electrophoresis-diffusion instrument; the Model R paper electrophoresis system, including the Analytrol, a recording-integrating densitometer; and the new Model CP continuous-flow paper electrophoresis instrument.

Standard Polarimeter Company, New York City (*Booth 32*). The Standard Model D Keston photoelectric polarimetric unit, which attaches to the Beckman DU spectrophotometer, is a highly sensitive, extremely convenient polarimeter with ability to measure angles of rotation with precision inherent in the Beckman DU spectrophotometer. Absolute rotations and enzyme kinetics may be followed. Micropolarimeter tubes (below 100 lambda) are available.

C. H. Stoelting Company, Chicago, Ill. (*Booth 57*) will feature many new and redesigned instruments of special interest to cost-minded individuals. Of special interest will be the following: A servo-graphic recorder, micromanipulator, animal holder, respirator, long paper kymograph, power supply, student and advanced type stimulators, electronic clock and counter, polygraphs and others. Representatives at the booth will be happy to demonstrate instruments. The combination of superb quality and low prices will pleasantly surprise you.

Technical Measurement Corporation, New Haven, Conn. (*Booth 42*) will exhibit the Model LP-2A liquid phosphor counter which utilizes an advanced technique for counting very soft beta radiation (tritium, carbon-14, sulphur-35) with high efficiency and no self-absorption or geometry problems. Also shown will be precision scalers, ratemeters, pulse height analysis equipment, high voltage power supplies, linear amplifiers, and scintillation counters.

Technicon Company, Chauncey, N. Y. (*Booths 83 and 84*) will feature various new devices for the first time. In addition, their new Mono- and Duo-Autotechnicons for automatic tissue processing will be in operation. This apparatus has been completely redesigned. Also shown will be: Technicon vectorscope with its automatic recording camera; Technicon automatic fraction collector, a time-operated collection apparatus with accessories for counting individual drops of fluid as a control; and Technicon Lab-Aid slide filing cabinets.

Charles C Thomas, Publisher, Springfield, Ill. (*Booth 58*). Some of their new books in this field are: de Nicola, *The Laboratory Diagnosis of Coagulation Defects;* Menkin, *Biochemical Mechanisms in Inflammation* (2nd ed.); Whipple, *The Dynamic Equilibrium of Body Proteins;* Meyer and Nassau, *The Physiology and Pathology of Infant Nutrition* (2nd ed.); Allgöwer, *Cellular Basis of Wound Repair;* Kuno, *Human Perspiration;* von Euler, *Noradrenaline.*

Tracerlab, Inc., Boston, Mass. (*Booths 105 and 106*). For the first time in the East, they will show several of the instruments in their complete new line of radiation research equipment. This complete new line of pulse height analysis equipment reflects Tracerlab's many years of experience in the field of radiation research and will be of particular interest to scientists in all fields who hope to use nuclear research tools. Built on a building block principle, the complete line of instruments comprises some 40 separate pieces which can be made up in a tremendous variety of systems.

Tri-R Instruments, Long Island City, N. Y. (*Booth 103*), developers of electronic and mechanical instruments for scientific research, will show a selection of their developments, including the Tri-R electronic thermometer for rapid temperature measurement, their automatic egg punch for opening embryonated eggs and the Auto-Fil with all Teflon valve for the automatic filling of all liquids. Competent engineering personnel will be available to discuss your laboratory problems.

Volk Radiochemical Company, Chicago, Ill. (*Booth 114*) will exhibit, besides radiochemicals, demonstrations of the synthesis and use of labeled compounds. Specially designed metabolism cages, lyophilizers, and related glass apparatus by Delmar Scientific Laboratories are also included in the exhibit. An extremely sensitive, inexpensive scanner for radioactive strip chromatograms is being shown for the first time.

Waters Corporation, Rochester, Minn. (*Booths 29 and 30*) will feature the new instant, self-developing photokymograph which gives immediate visual records without costly amplification of blood oxygen saturation as well as of other physiological phenomena. Actual operation will be demonstrated. Also presented will be the Waters oximeter, cardiotachometer, resistance thermometer, including several unique probes, and nitrogen meter.

Waverly Press, Inc., Baltimore, Md. (*Booth 15*). Printers of medical and scientific books and periodicals.

John Wiley & Sons, Inc., New York City (*Booth 2*), publishers in science and technology, will display the latest basic and advanced books in all areas of biological sciences. Of special interest are the *Biological Research* series, *Biochemical Preparations,* and the well-known *Methuen Monographs.*

Will Corporation, Rochester, N. Y. (*Booth 46*). Their exhibit will consist of the chromatographic scanning accessory for the Beckman Model B spectrophotometer, the new direct-reading one-pan Mettler balance Model K-7, a portable refrigeration cooling unit which may be carried by hand from one laboratory to another, a variable-speed shaking machine suitable for all clinical shaking requirements, a gyratherm magnetic stirrer-hot plate and polyethylene stirring bar retriever, and the new Sartorius freezing microtome.

Williams & Wilkins Co., Baltimore, Md. (*Booth 14*) will display the new 2-volume 4th edition of Topley and Wilson's *Principles of Bacteriology and Immunity* along with other important current books. Stop by for a browsing session.

Year Book Publishers, Inc., Chicago, Ill. (*Booth 78*) will display a selected group of books for your examination. Among them will be McDonald's *Ionography: Electrophoresis in Stabilized Media;* the English translation of Cajal's *Studies on the Cerebral Cortex;* Comroe's *The Lung: Clinical Physiology and Pulmonary Function Tests;* the *Methods in Medical Research* series; and others of current interest.

Yellow Springs Instrument Company, Inc., Yellow Springs, Ohio (*Booth 43*) will feature a wide range of thermistor temperature measuring equipment, including the new interchangeable probes for use with the single and 12-channel tele-thermometers. The improved 6-channel model will be displayed, together with new probes, including 22-gage needles and implantation thermistors. Complete information on the new YSIC wide range cardiotachometer and improved Dermohmmeter will be available.

Member and Institutional Exhibits

Human lysine needs in nutritional stress. ANTHONY A. ALBANESE, REGINALD A. HIGGONS,* GERTRUDE M. HYDE* AND LOUISE ORTO.* *Nutritional Research Lab., St. Luke's Hosp., New York City* (*Booth D*). The lysine needs of healthy children and adults are generally met by proteins contained in the average American diet. However, under conditions of nutritional stress from any cause, the usual intake of proteins may fail to provide sufficient lysine for rapid reconstruction of essential tissues. Our presentation attempts to demonstrate that supplementing these diets with lysine—because it corrects amino acid imbalances and thereby increases protein utilization—offers a promising approach in overcoming protein deficiencies of nutritional stress.

American Cancer Society, Inc., New York City (*Booth 126*). This exhibit illustrates a few of the tools used in cancer research such as the electron microscope, ultraviolet microscope, radioactive isotopes, chemotherapeutic agents; demonstrates the role of carcinogens, genetics, viruses, hormones and nutrition, enzymes, biochemical factors and radiobiology in their practical application to the solution of many aspects of this problem.

American Heart Association, New York City (*Booth 18*). "The American Heart Association Serves the Physician" is an exhibit designed to present the professional activities of the Association. Visual displays outlining the research program, published scientific information and educational aids developed for professional education afford the physician an opportunity to acquaint himself with the activities and educational materials in the field of cardiovascular disease.

American National Red Cross, Washington, D. C. (*Booth 16*) will show a floor-standing display, lighted and colorful, carrying actual containers of whole blood and derivatives; also photographs showing their use.

Hyperventilation. BRUNO BALKE,* ROBERT T. CLARK, JR., AND J. GORDON WELLS.* *USAF School of Aviation Medicine, Randolph AFB, Texas* (*Booth 17*). The clinical symptoms of hyperventilation and the correlation between those symptoms and psychomotor responses are depicted by the use of charts, photos and equipment. A sampling device and method devised for an inflight evaluation study of potential incidence of hyperventilation among aircrewmen are shown.

Vasopressor and respiratory responses to cerebrospinal fluid compression in the cat. H. L. BORISON AND C. A. WHITE.* *Dept. of Pharmacology, Univ. of Utah College of Medicine, Salt Lake City* (*Booth G*). Specialized receptors, stimulated by increased cerebrospinal fluid pressure, are located within the neuraxis at a finite distance from vasomotor centers. Vasopressor responses are initiated both rostral and caudal to C-7, whereas respiratory responses are initiated only rostral to C-7.

The care of laboratory animals. N. R. BREWER. *American Veterinary Med. Assn., Chicago, Ill.* (*Booth C*). The exhibit will stress the importance of budgeting for individuals with specialized training as managers of animal quarters. It will emphasize the interest that the veterinary profession has in this type of endeavor, and our readiness to cooperate in the solution of problems that are presented to us. Pictures highlighting important recommended procedures will be presented. Some of the agencies interested in laboratory animal care will be listed, along with some representative informative releases.

California Foundation for Biochemical Research, Los Angeles, Calif. (*Booth 127*). The Foundation will display the procedures used to prepare biochemicals in their laboratories. A large assortment of literature will be available, as well as a new *Aid for the Biochemist*. Drs. Henry Rinderknecht and Alfred Deutsch will be present to discuss biochemical matters.

Accurate climatic control of a test cell for human beings. I. D. FERGUSON,* A. B. HERTZMAN, F. J. LECLAIR* AND R. V. ERKEN.* *Dept. of Physiology, St. Louis Univ. School of Medicine, St. Louis, Mo.* (*Booth N*). Vasomotor and sudomotor responses occur to small variations in climatic conditions. A procedure for accurate climatic control will be explained. Steady state or continuously variable environments are provided between 55° and 145° F dry bulb with any relative humidity between 25 and 100% and still air conditions. Compensation exists for varying outputs of heat and water vapor from humans within the cell even under changing environmental conditions and differing degrees of muscular activity. (Supported by USAF Contract.)

Pharmacology of antihypertensive drugs. HAROLD D. GREEN. *Dept. of Physiology and Pharmacology, Bowman Gray School of Medicine, Winston-Salem, N. C.* (*Booth I*). This exhibit illustrates diagrammatically the structural formula, sites and mechanisms of action of the five currently, commonly-used drug groups in the treatment of hypertension; a possible combination therapy for varying degrees of severity of hypertension is suggested. The drug groups presented include the adrenergic blocking drugs, the ganglionic blocking drugs, the sedative group (Rauwolfia), the chemoreceptor group (Veratrum drugs) and the prophylactic drugs (hydralazine).

Goiter in Chile, Peru and Argentina. ISIDOR GREENWALD. *New York Univ.-Bellevue Med. Ctr., New York City* (*Booth H*). Goiter was not present in the pre-Hispanic era. In Chile, the endemicity is slight but increasing. In Peru, it is severe and probably increasing. In Argentina, it was severe but has been diminishing for a century. (All without benefit of iodine.)

Daily variations in physiologic parameters in various mammals. FRANZ HALBERG AND MAURICE B. VISSCHER. *Dept. of Physiology, Med. School, Univ. of Minnesota, Minneapolis* (*Booth M*). Physiologic 24-hour periodicity will be illustrated at several levels of integration, with emphasis on standardization of circumstances of observation, on quantitative analysis of data, on contributory extrinsic and intrinsic factors and on the patho-physiologic significance of the phenomenon.

Harvard Apparatus Company, Inc., Dover, Mass. (*Booth 19*). An exhibit of apparatus for teaching and research in physiology and the allied sciences.

Paper chromatography and the separation of chlorophyll derivatives. M. J. HENDERICKSON,* R. R. BERUEFFY* AND A. R. MCINTYRE. *Dept. of Physiology and Pharmacology, Univ. of Nebraska College of Medicine, Omaha* (*Booth J*). The exhibit depicts the progressive purification by circular paper chromatography of crude leaf extract to the chromatographically pure homogeneous material. This material has a marked cardiotropic action, and kymographic and electromyographic tracings are shown illustrating the effect of the active material on the hypodynamic heart.

Sonic gas analyzer for measuring respiratory gases. MICHAEL KNIAZUK AND F. ROBERT PREDIGER (introduced by HANS MOLITOR). *Merck Inst. for Therapeutic Research, Rahway, N. J.* (*Booth 140*). An instrument which determines changes in gas concentration by measuring changes in sound velocity has been constructed and adapted to studies of O_2 uptake and R.Q. in experimental animals. A complete analysis requires but 3 minutes. The intrument measures changes of concentration of 0.01% O_2 and 0.005% CO_2 in respired air.

Spontaneous contractions of frog voluntary muscles from cholinesterase inhibitors. CHARLES P. KRAATZ. *Dept. of Pharmacology, Jefferson Med. College, Philadelphia, Pa.* (*Booth K*). Isolated in a bath of nutrient Ringer solution, a number of relatively thin muscles of the frog respond to 'nontoxic' concentrations of certain cholinesterase inhibitors by integrated contractions, often of a considerable portion of the muscle. The presentation will offer experimental analysis of some of the factors involved in the phenomenon.

Chlorisondamine dimethochloride (Ecolid™, Su-3088), a long-acting, orally effective antihypertensive agent. ROBERT A. MAXWELL* AND ALBERT J. PLUMMER. *Ciba Pharmaceutical Products, Inc., Summit, N. J.* (*Booth 3*). A diagrammatic representation and discussion of the phenomenon of ganglionic blockade, coupled with a discussion concerning the evaluation of new antihypertensive agents which interrupt ganglionic transmission.

A-V transmission system. W. J. MUELLER,* G. K. MOE, J. B. PRESTON* AND H. BURLINGTON.* *Dept. of Physiology, State Univ. of New York Upstate Med. Ctr., Syracuse* (*Booth 136*). An electronic model illustrates the behavior of the A-V transmission system in terms of two interconnecting pathways having different temporal characteristics. Charts describe experimental data on which the model is based.

Muscular Dystrophy Associations of America, Inc., New York City (*Booth 128*). The exhibit consists of three panels. Left panel shows what muscular dystrophy does. Center panel consists of a screen behind which is an automatic projector showing a series of 12 color slides in rotation on characteristics of the disease. Right panel deals with common forms of the disease (onset, course and direction) and with differential diagnosis.

Arteriosclerotic lesions in pyridoxine-deficient monkeys and dogs. CHARLES W. MUSHETT AND GLADYS A. EMERSON. *Merck Inst. for Therapeutic Research, Rahway, N. J.* (*Booth P*). The exhibit will demonstrate, by color photomicrographs, the typical arteriosclerotic lesions found in pyridoxine-deficient monkeys and dogs. In addition, growth curves, photographs and three-dimensional blocks indicating relative organ weights of deficient and control monkeys will be shown.

National Foundation for Infantile Paralysis, New York City (*Booth 124*). The exhibit will describe the Professional Education Program of the Foundation, with special emphasis on its research activities.

A rapid turbidimetric method for quantitative analysis of plasma protein with ammonium sulfate. I. A. PARFENTJEV. *Yale Univ. School of Medicine, New Haven, Conn.* (*Booth 137*). The technique is simple and requires only 2 ml of plasma for complete protein fractionation including the assay of the fibrinogen level. The method, suitable for clinical laboratories, was described in the literature as an aid in diagnosis.

Parabiosis between rats of different ages in the study of gerontology. FRANK POPE,* GLADYS SPERLING,* WANDA LUNSFORD* AND CLIVE MCCAY. *Animal Nutrition Lab., Cornell Univ., Ithaca, N. Y.* (*Booth F*). A photographic exhibit will be presented to show the methods used in forming parabiotic unions between very young and middle-aged rats. Unions between hamsters will also be shown. Problems involving incompatibility, anesthesia, surgery and breeding as well as growth rates and aging will be illustrated.

Heart pain: its mechanisms and relief. JOSEPH T. ROBERTS. *VA Hosp. and Univ. of Buffalo School of Medicine, Buffalo, N. Y.* (*Booth B*). Spasm of vasa nervorum in the left arm is presented as an explanation of heart pain. This is correlated with the usual and some new methods of relieving such pain. The use of group therapy for cardiac patients is introduced. Arteriolization of the coronary sinus is compared with other

new and older methods of revascularizing the ischemic heart.

Automatic examiner. JOHN C. SCOTT. *Dept. of Physiology, Hahnemann Med. College, Philadelphia, Pa.* (*Booth L*). A dual purpose device enables the student to evaluate his knowledge of physiology by means of objective-type questions, and the instructor to evaluate class knowledge or effectiveness of teaching techniques. The apparatus presents 50 questions with multiple-choice answers. Correct or incorrect answers are indicated immediately.

Some physiological aspects of aging. N. W. SHOCK AND STAFF. *Sec. on Gerontology, Natl. Heart Inst., Bethesda and Baltimore City Hosps., Baltimore, Md.* (*Booth 125*). Some of the physiological aspects of aging in the human being are illustrated graphically to show that *a*) not all physiological functions diminish with age, and *b*) some of the decrements may be explained by a progressive loss of functioning protoplasm. Studies of renal function, body water estimates and basal metabolism are illustrated.

United States Pharmacopeial Convention, Inc., New York City (*Booth 135*). A display of the 67 current U. S. P. Reference Standards and the 48 recently released Steroid Reference Substances for use in paper chromatography will be shown.

Subject file on machine punched cards. W. W. WAINIO AND R. F. LINDAUER.* *Rutgers Univ., New Brunswick, N. J.* (*Booth O*). The preparation of a 'master' IBM card and the punching, duplicating, interpreting and filing of additional cards is described. The relation of the card file to abstract and reprint files and the compilation of lengthy bibliographies is presented.

Genesis of rat skeleton. DONALD G. WALKER AND Z. T. WIRTSCHAFTER (introduced by HANCE F. HANEY). *VA Hosp., Portland, Ore.* (*Booth A*). This exhibit presents a comprehensive microscopic demonstration of the establishment of ossification centers in the rat. Ossification normally begins in the rat embryo during the 17th day after conception and proceeds so rapidly that within 1 week all diaphysial centers are established, and within an additional 3 weeks all epiphyseal centers are present. The photographed, alizarin-stained cleared specimens are superior to radiograms. The rapidity and exactitude of the chronology of the establishment of ossification centers is demonstrated. (Collaborative exhibit from VA Hosp. and Univ. of Oregon Med. School, Portland.)

Biological Abstracts, Philadelphia, Pa. (*Booth 129*).

Gastric and biliary secretion in the rat. A. C. IVY, T. M. LIN, E. KARUINEN, E. B. MAGID AND H. B. HAYES. *Dept. of Clinical Sciences, Univ. of Illinois College of Med., Chicago* (*Booth E*).

PROGRAM OF LADIES ACTIVITIES

April 16–20, 1956

General Information

A Guest Registration Desk will be open Monday, April 16, from 9:00 A.M. until 9:00 P.M. in the Lobby of Convention Hall; this desk will be open Tuesday through Thursday from 8:00 A.M. to 5:00 P.M. Please fill out registration cards for *Guests* and hand this card to the attendant who will fill out a Guest Badge for you. A registration fee of $1.50 will be charged to offset printing costs of tickets and to be applied to reservations for buses. This fee includes the Tea and Hat Show at Chalfonte-Haddon Hall.

The Chairman and members of the Ladies Committee will have a booth near the Guest Registration Desk to assist guests in becoming acquainted and making reservations.

Tickets for tours are obtainable at the Federation Ticket Desk.

PROGRAM

Monday, April 16, 2:00–4:00 P.M. Tea and Hat Show at Chalfonte-Haddon Hall.

Tuesday, April 17, 1:30–4:00 P.M. Bus tour including Absecon Light House and Brighton Orchid Farm. *Reservations must be made by 5:00 p.m. Monday.*

Thursday, April 19, 10:00 A.M.–1:00 P.M. Bus tour to Lenox Factory Show Rooms. *Reservations must be made by noon Wednesday.*

Members of the Committee: MRS. KARL HABEL, *Chairman*; MMES. E. A. DOISEY, W. H. GRIFFITH, J. P. BAUMBERGER, W. H. CHAMBERS, W. H. HAMILTON, C. G. KING, JOEL WARREN, H. L. DICKISON, H. R. COX, E. G. GROSS, AND H. E. CARTER.

AUTHOR INDEX

Roman figures refer to serial number of abstract, FEDERATION PROCEEDINGS, Part I; **bold figures** refer to serial number of paper in program, FEDERATION PROCEEDINGS, Part II. S refers to symposia and special sessions; P refers to panels; JS refers to Joint Session; and MP, to Motion Pictures, Page 628.

Abbott, L. D. Jr., 674, **1180**
Abeles, R. H., 675, **815**
Abernathy, R. S., 1890, **2039**
Abood, L. G., 634, **373**
Aboody, R., 838, **1365**
Abrams, R., 711, **1119**
Abramsky, M., 676, **929**
Abreu, B. E., 1387, **1523**
Ackerman, C. J., 1758, **1891**
Ackerman, N. B., 1, **455**
Ackermann, W. W., 1891, **1967**; 1934, **2009**
Adachi, R., 1157, **1900**
Adam, D. J. D., 1884, **1852**
Adams, E., 677, **1360**
Adams, E. C., Jr. 678, **1264**
Adams, J. Q., 2, **620**
Adams, R., 67, **552**
Adams, R. D., 2023, **2049**
Adams, W. E., 465, **302**
Adamson, D. M., 160, **333**
Adelman, W. J., 661, **247**
Adelstein, S. J., 1639, **831**
Adeyemo, A., 1569, **1408**
Adler, F. L., 1892, **2072**
Adler, T. K., 1281, **1497**
Adolph, E. F., **404**S
Aebi, H., 1087, **1250**
Aftergood, L. 1759, **11**
Agee, J. 1270, **115**
Agersborg, H. P., Jr., 3, **720**; 27, **731**
Agre, K., 1282, **1460**
Agulnek, M., 228, **522**
Ahlness, P., 172, **630**
Ahlquist, R. P., 1490, **1564**
Ainis, H., 324, **126**
Aisen, P., 992, **622**
Ajl, S. J., 1893, **2052**
Aladjem, F., 679, **1089**
Albanese, A. A., 680, **1284**
Albrecht, A. M., 681, **1327**
Alcaraz, M., 293, **533**
Alcocer-Cuaron, C., 292, **763**
Aldes, J. H., 1067, **1739**
Aldrich, P., 1852, **1890**
Aldrich, R. A., 1200, **1159**
Alex, T., 1128, **1126**
Alexander, H. D., **180**S
Alexander, J. C., 1760, **1836**
Alexander, W. M., 1387, **1523**
Alfin-Slater, R. B., 760, **59**; 1759, **11**; 1776, **1851**; 1783, **1838**
Alkjaersig, N., 1151, **40**
Alkane, J. F., 4, **332**
Allen, F. W., 776, **1362**
Allen, G., 1569, **1408**
Allen, J. G., 278, **43**
Allen, J. R., 1089, **1007**
Allen, R. F., 1753, **12**
Allensworth, J. W., 306, **282**
Allison, J. B., 1761, **1905**
Allred, J., 1818, **1897**
Alpen, E. L., 139, **669**
Alper, C., 1282, **1460**
Alpert, N. R., 5, **510**
Altamirano, M., 6, **245**; 536, **442**
Altland, P. D., 7, **511**; 69, **623**; 1684, **1716**; 1721, **1717**
Altszuler, N., 8, **312**; 637, **311**
Alvig, O. H., 988, **1061**
Alvord, E. C., 938, **1724**
Alworth, B. L., 1628, **1419**
Amassian, V. E., 9, **459**
Ambrose, A. M., 1283, **1561**; 1313, **1667**
Ambrus, J. L., 1290, **122**
Ames, B. N., 682, **1141**
Ames, S. R., 1809, **1847**
Amiralan, K., 1983, **2056**
Amrein, M., 411, **671**
Anason, A., 81, **369**
Andersch, M. A., 683, **125**
Anderson, C. E., 1068, **1375**
Anderson, D. G., 799, **1028**
Anderson, E. I., 1185, **1249**
Anderson, E. P., 684, **949**
Anderson, F. F., 1284, **1579**
Anderson, F. S., 644, **384**
Anderson, H. H., 1435, **1679**
Anderson, J.T., 255, **500**; 603, **505b**; 1762, **3**
Anderson, N. G., 10, **1341**
Anderson, R. C., 1544, **1645**
Anderson, R. S., 11, **567**
Andersson, B., 12, **M.P.**, p. 628
Andose, A., 1585, **1510**
Andres, R., 13, **549**
Andresen, R., 1640, **1702**
Andrew, W., **275**S
Andrews, J. C., 1273, **1384**
Andrews, J. S., **179**S
Andrus, S. B., 1763, **8**; 1790, **10**; 1831, **6**
Anfinsen, C. B., Jr.,JS, p. 628; 685, **822**
Angerer, C. A., 652, **800**
Angevine, D. M., 1661, **1784**; 1705, **1767**
Anliker, J., 1835, **1802**
Annegers, J., 339, **687**
Anthony, W. L., 704, **82**
Antoniades, H. N., 686, **1271**
Antopol, W., 672, **802**; 673, **673**; 1641, **137**
Anzola, J., 513, **281**
Aposhian, H. V., 687, **861**; 1285, **1663**
Appert, H., 212, **611**
Aprison, M. H., 14, **325**
Aras, Albert, 1652, **1707**
Archibald, E. R., 347, **770**
Armocida, E., 1115, **1377**
Armstrong, M. D., 1155, **1171**
Armstrong, W. D., 15, **104**; 749, **135**
Arnold, A., 1764, **1848**; 1766, **1849**
Anrich, L., 688, **1833**
Arnoff, S., 689, **927**
Arons, W. L., 1, **456**
Arquilla, E. R., 1945, **1965**
Arroyave, G., 1872, **1837**
Arscott, P., 1649, **24**
Arscott, P. M., 1642, **39**
Artom, C., 690, **1295**
Asano, T., 315, **396**
Asenjo, C. F., 782, **923**
Ashburn, L. L., 1595, **1616a**
Asher, D. R., 582, **612**
Asher, D. T., 1437, **1640**
Ashmore, J., 217, **583**; 691, **1063**
Ashworth, E., 836, **1359**
Assali, N. S., 844, **406**
Aston, R., 1286, **1582**
Astrachan, L., 692, **1191**
Asuncion, C. L., 408, **539**
Atkins, J., 1883, **1916**
Auditore, G. V., 1287, **1552**; 1428, **1412**
Aull, J. C., 354, **661**
Auvil, D. K., 674, **1180**
Auyong, T., 33, **732**
Avery, M., 1372, **1568**
Aviado, D. M., Jr., 16, **351**
Awapara, J., 791, **1243**
Axelrod, A. E., 1859, **1819**
Axelrod, B., 693, **829**
Axelrod, J., 1288, **1443**; 1577, **1440**
Ayer, J. P., 1643, **1745**
Ayres, N. S., 184, **659**
Azima, H., 17, **323**

Baart, N., 1289, **172**; 1368, **1639**; 1374, **176**; 1568, **174**
Bacchus, H., 18, **454**
Bach y Rita, P., 1454, **1652**
Bachhawat, B. K., 694, **1068**
Back, N., 1290, **122**
Bacon, J. A., 1857, **1880**
Baeder, D. H., 1291, **88**; 1566, **87**
Baer, J. E., 668, **701**
Baetjer, A. M., 326, **729**
Baes, S., 576, **675**; 1292, **1664**
Baggett, B., 1134, **1160**
Bahn, R. C., 252, **280**
Baily, N. A., 445, **690**
Bain, J. A., 1293, **1516**
Baird, C. D. C., 1787, **1817**; 1844, **1827**
Baird, H. L., 98, **153**
Baker, B. L., 20, **730**
Baker, D. G., 274, **536**
Baker, G. D., 704, **82**
Baker, R. D., 541, **704**; 1644, **1715**
Baker, W. W., 572, **270**; 1294, **1665**
Bakshy, S., 516, **202**
Baldes, E. J., 295, **336**
Baldridge, H. D., 1604, **187**
Bale, W. F., 569, **2003**; 1645, **1758**
Baléa, T., 126, **742**
Balek, R. W., 1295, **1591**

Balis, M. E., 695, **1263**
Balke, B., 21, **512**; 179, **681**; 643, **680**
Ball, E. G., **995S**
Ball, W. C., Jr., 22, **214**; 252, **280**
Ballard, A., 1631, **1426**
Balourdas, T. A., 23, **337**
Baltscheffsky, M., 1170, **1019**
Banks, J., 1258, **897**
Bannett, S. M., 644, **334**
Baptist, J. N., 1227, **832**
Barban, S., 696, **54**
Barboriak, J. J., 1765, **1820**
Barclay, R. K., 859, **1034**
Bardhanabaedya, S., 145, **745**
Barger, A. C., 24, **502**
Barker, H. A., 697, **941**
Barker, J. N., 25, **509**
Barker, P., 1706, **1781**
Barker, S. B., 26, **461**; 1562, **1512**
Barlow, G., 3, **720**; 27, **731**
Barlow, J. L., 2020, **1186**
Barner, H., 864, **1117**
Barnes, T. C., 1296, **1532**
Barnett, R. C., 28, **718**
Barnum, C. P., 918, **982**
Barraclough, C. A., 29, **240**
Barrett, W. E., 30, **517**
Barrows, C. H., **277S**
Barry, G. T., **1556**
Bartholomew, R. A., 901, **1791**
Bartlett, P. D., 698, **1076**
Bartlett, R. G., 31, **242**
Bartlett, R. G., Jr., 377, **772**
Barton, A. D., 32, **980**
Barton, B., 527, **436**
Barton, E., 679, **1089**
Bascom, W. D., 507, **591**
Bascoy, L. T., 816, **100**
Basek, M., 200, **309**
Basford, R. E., 699, **1232**
Basinski, D. H., 1924, **1981**
Bass, A. D., 1342, **1056**; 1362, **1618**
Bassett, C. F., 1877, **1807**
Bastian, J. W., 1297, **121**; 1425, **150**
Bateman, J. B., 170, **1105**
Bates, R. W., 761, **1326**
Batterman, R. C., 1298, **1621**; 1396, **1612**; 1406, **1538**
Battersby, W. S., 461, **417**
Batts, A. A., 609, **525**
Baughan, M. A., 1884, **1852**
Baum, S. J., 1299, **29**
Baumann, C. A., 1791, **1801**
Baumann, D., 1565, **1449**
Baumgardt, J. P., 33, **732**
Baxter, C. F., 700, **1021**
Baxter, J., 1399, **1705**
Baxter, J. H., 1300, **1755**
Bay, E., 34, **1493**
Bay, I., 34, **1493**
Beach, V. L., 367, **235**
Bean, J. W., 35, **689**
Beardmore, W. B., 1993, **1953**
Bearn, A. G., 36, **218**
Beaton, G. H., 701, **194**
Beatty, C. H., 37, **709**
Bechtel, A. A., 38, **359**
Beck, L. V., 39, **452**
Beck, W. S., 821, **1086**
Becker, E. L., 1894, **2062**; 1906, **2064**; 1974, **2021**
Becker, J. R., 1712, **1711**
Becker, R. R., 1122, **955**; 1193, **1037**
Becker, W. W., 975, **1370**
Beecher, H. K., 1301, **1495**; 1401, **1496**
Beers, R. F., Jr., 40, **1259**
Beerstecher, E., Jr., 702, **863**
Begany, A. J., 1302, **1657**
Begg, R. W., 703, **50**
Beher, W. T., 704, **82**
Behnke, A. R., 41, **548**
Behnke, A. R., Jr., 184, **659**
Behrmann, V. G., 42, **575**
Beidler, L. M., 43, **605**; 613, **604**
Beiler, M. J., 705, **1790**
Beinert, H., 706, **1214**
Beisaw, N. E., 46, **594**
Belford, J., 1303, **1461**
Bell, F. E., 707, **893**
Bell, F. K., 1602, **1514**
Bell, J. B., 44, **733**
Belleville, R. E., 1377, **1505**
Bellin, E. L., 1101, **55**
Benaron, H. B. W., 299, **374**
Bender, C. H., 1371, **1584**
Bender, M. B., 461, **417**; 632, **535**
Benditt, E. P., 1646, **1792**
Benerito, R. R., 708, **1347**
Benesch, R., 709, **972**
Benesch, R. E., 709, **972**
Bennett, A. L., 1613, **1698**
Bennett, B. L., 1992, **1950**
Bennett, H. S., 4, **332**
Bennett, L. L., Jr., 710, **53**
Bennett, L. R., 1648, **136**; 1694, **130**
Bennett, M. J., 1839, **1935**
Benson, W. M., 1304, **1625**
Bentley, M., 711, **1119**
Bentley, R., 712, **1218**
Benzinger, T. H., 45, **635**; 425, **636**
Berg, C. P., 756, **1125**
Berg, P., 713, **1078**
Bergen, J. R., 46, **594**
Berger, C. R. A., 883, **1302**
Berger, E., 570, **110**
Berger, F. M., 1305, MP, p. 628; 1419, **1550**
Berger, H., 392, **624**
Berglund, E., 47, **388**
Berglund, F., 118, **295**
Berliner, D., 518, **1356**
Berliner, D. L., 714, **1351**
Berke, H. L., 48, **717**
Berkowitz, E. C., 49, **531**
Berlin, L., 50, 734
Berman, H. J., 51, M.P., p. 628; 52, **735**
Berman, I., 53, **314**
Berman, M. D., 546, **252**
Bermes, E. W., Jr., 715, **1361**
Berne, R. M., 54, **389**; 1630, **1486**
Bernfeld, P., 716, **1346**
Bernheimer, A. W., 1989, **2057**
Bernstein, H., 55, **458**
Bernstein, W., 720, **1336**
Berthet, J., 1091, **1155**
Berthet, L., 881, **1073**
Berry, J. F., 1020, **1004**
Berueffy, R. R., 1441, MP, p. 628
Bessman, M. J., 717, **1344**
Bessman, S. P., 968, **1148**
Best, C. H., 519, **712**
Bethell, F. H., 1740, **46**
Beutner, E. H., 1306, **1554**
Beutner, R. H., 56, **185**; 57, **736**
Bevans, M., 1647, **1778**; 1904, **1910**
Beyler, A. L., 1764, **1848**; 1766, **1849**
Bhamarapravati, N., 1668, **1759**
Bhargava, K. P., 1307, **1569**
Biale, J. B., 676, **929**
Bialy, J. J., 1238, **1379**
Bianconi, A. M., 39, **452**
Bier, M., 1210, **887**
Bieri, J. G., 1767, **1850**
Bierman, H. R., 1449, **626**
Billig, D. M., 58, **206**
Billings, M. S., 1648, **136**
Binion, J. T., 59, **210**; 432, **211**
Birch, J. H., 1535, **1531**
Bird, E., 1793, **1845**
Birnbaum, S. M., 718, **1808**
Birzis, L., 60, **637**
Bischoff, F., 719, **658**
Bittner, J. J., 107, **644**
Bjerknes, C., 720, **1336**
Björklund, B., 885, **1957**
Black, F. L., 1895, **1954**
Black, J., 251, **45**
Black, S., 721, **1144**
Blackmore, W. P., 1308, **1587**
Blair, J. R., 658, **629**
Blake, W. D., 61, **501**
Blatt, I. M., 1940, **2027**
Blau, M., 1896, **2001**
Bliss, C. I., **1421S**
Bloch, A., 1513, **90**
Bloch, E., 722, **1070**
Bloch, E. H., 1897, MP, p. 628
Bloch, K., 1056, **847**
Blockus, L. E., 1369, **1427**
Bloodworth, Jr., J. M. B., 1649, **24**
Bloom, B. M., 723, **1158**
Blum, H. F., 62, **698**
Blum, J. J., 63, **261**; 68, **257**
Blumberg, H., 1309, **1593**; 1310, **1666**
Blumenfeld, S., 529, **788**
Blumenstein, J., 1257, **1742**
Bocek, R. M., 37, **709**
Bocklage, B. C., 1111, **1168**
Bodenlos, L. J., 1747, **1765**
Bodi, T., 64, **737**
Boell, E. J., **400S**
Boeri, E., 751, **1236**
Bogart, R., 369, **645**
Bogdanski, D. F., 1311, **1634**; 1356, **1635**; 1605, **1635**
Boggiano, E. M., 1169, **1247**
Bogoch, S., 826, **996**
Bohner, B., 1329, **1668**
Bohner, H. J., 1965, **2070**
Bohr, V. C., 31, **242**
Bolene-Williams, C., 342, **769**
Bollman, J. L., 823, **1321**; 1650, **1701**; 1701, **1762**
Bond, V. P., 65, **106**; 500, **111a**
Bonnycastle, D. D., 1312, **1543**
Booker, W. M., 1499, **1417**; 1569, **1468**
Booth, A. N., 724, **1274**; 1313, **1667**
Borison, H. L., 66, **103**; 1307, **1569**
Bornstein, A. M., 148, **610**
Boroff, D. A., 288, **666**; 1898, **2051**
Borsook, H., **1869S**
Borst, H., 47, **388**
Boryczka, A., 816, **100**
Borzelleca, J. F., 1314, **1462**
Boss, W. R., 238, **758**
Bothelho, S., 67, **552**
Bott, P. A., 725, **294**
Boucek, R. J., 337, **1201**; 1507, **91**
Bouchard, B. S., 1827, **1932**
Bourke, A. R., 1315, **1404**; 1373, **1405**
Bowen, W. J., 68, **257**
Bowman, H. S., 1537, **1691**

Boyd, C. E., 1316, 133a
Boyd, E. M., 1316, 133a
Boyd, L. J., 235, 757
Boyd, R. B., 101, 740a
Boyer, G. S., 1920, 1942
Boyer, P. D., 726, 1013
Bozeman, F. M., 1899, 1988; 1995, 1987
Brace, K. C., 69, 623
Bracken, E. C., 1651, 1722; 1717, 1721B
Bradford, W. L., 1753, 12
Bradley, A. F., 590, 682
Bradley, A. J., 1312, 1543
Bradley, S. E., 645, 330
Bradlow, H. L., 727, 1161
Brady, A. J., 70, 395
Brady, R. O., 1129, 1145
Bragg, A. D., 1615, 1560
Braham, J. E., 1872, 1837
Bramante, P. O., 209, 335
Brand, L., 1482, 1389
Brandfonbrener, M., 556, 198; 615, 355
Brannick, L. J., 30, 517
Brauer, R. W., 1317, 1650
Braunschweig, L. W., 668, 701
Braunwald, E., 71, 381; 99, 380; 214, 568; 577, 288
Brecher, G. A., 543, 674
Brecht, E. A., 1068, 1375
Brehme, A. C., 173, 703
Brendel, R. R., 705, 1790
Brennan, M. J., 1924, 1981
Bressani, R., 1768, 1850
Brewer, W. D., 1769, 1909
Briggs, G. M., 1767, 1850
Bright, H. B., 1810, 1835
Brin, M., 728, 1282
Brink, F., 315, 396
Brinkhous, K. M., 1746, 113
Briscoe, S. M, 72, 656
Briscoe, W. A., 73, 308
Britton, B., 1254, 1065
Brodie, B., 1465, 1630
Brodie, B. B., 1356, 1636; 1376, 1393; 1415, 1638; 1423, 1631; 1482, 1389; 1561, 1643; 1573, 1629
Brodsky, W. A., 74, 341
Brody, A. W., 75, 224
Brody, S., 136, 628; 329, 766
Bromley, J. W., 1770, 1857
Bronk, D. W., 121, 253
Bronner, F., 729, 1131; 1880, 1925
Brooks, C. McC., 592, 484
Brooks, P. M., 76, 134; 229, 105
Brooks, R. H., 718, 1808
Brooks, V. B., 77, 415
Broquist, H. P., 730, 1306
Bross, I., 1404, 1555
Brown, A., 1652, 1707
Brown, E. B., Jr., 78, 685
Brown, E. S., 79, 233
Brown, F. C., 731, 1146
Brown, G. B., 871S
Brown, G. C., 1900, 1947
Brown, G. W., 117, 326
Brown, I. W., Jr., 167, 334
Brown, J. H. U., 80, 738; 81, 369
Brown, J. R., 1089, 1007
Brown, M. L., 117, 326
Brown, R. K., 732, 1112; 1952, 2023
Brown, R. R., 733, 1176; 1079, 1173
Brown, R. V., 1318, 1434
Brown, T. G., Jr., 1319, 213
Brownell, L. E., 178S, 742, 1809
Brownell, L. W., 1142, 16
Brozek, J., 428, 505a
Bruce, C., 1716, 1772
Bruce, W. F., 1302, 1657
Bruemmer, J. H., 1847, 1822
Bruemmer, N. C., 1212, 1345
Bruhn, J. M., 182, 265
Brummond, D. O., 734, 1255
Brunder, J., 1707, 1777
Bruner, H. D., 1572, 1488
Brunish, R., 735, 1193
Bruno, D., 1858, 7
Brush, M. K., 1761, 1905
Brust, M., 524, 787
Brust-Carmona, H., 292, 763
Bubl, E. C., 183S
Buch, F. G., 82, 739
Buchanan, D. L., 736, 1041
Buchanan, G. D., 83, 414
Buchanan, J. M., 993, 913
Buchwald, N. A., 84, 328
Buckley, S. M., 1653, 1718
Budovich, T., 1063, 952
Bueding, E., 1320, 1474
Buehler, H. J., 1048, 844
Buescher, E. L., 1996, 1992
Buettner, K. J. K., 85, 726
Bulaschenko, H., 611, 592
Bull, F. E., 1654, 1786
Bullard, R. W., 86, 477
Bumpus, F. M., 737, 557
Bunker, J. P., 1421, 1515
Burbridge, T. N., 1424, 1480
Burch, H. B., 738, 1281
Burchenal, J. H., 1780, 17
Burge, G. J., 136, 628
Burger, M., 1171, 1134
Burgess, L. E., 87, 1824
Burgison, R. M., 1321, 1599
Burk, D., 739, 933; 1267, 99
Burke, J. C., 1943, 1980
Burke, W. T., 740, 886
Burkhalter, A., 1322, 171
Burma, D. P., 741, 857
Burman, J., 1094, 1207
Burns, C. H., 178S; 742, 1809
Burns, J. J., 1323, 954; 1482, 1389
Burns, M. J., 1778, 14
Burr, W. W., Jr., 1255, 808; 1771, 1846
Burrill, L., 1769, 1909
Burris, R. H., 741, 857
Burrows, B. A., 1982, 1983
Burstein, S., 743, 1071; 1711, 1727
Burstein, B., 143, 329
Burton, A. C., 218, 634
Burton, R. B., 912, 1350
Busch, H., 744, 1476
Bush, M. T., 1324, 1388
Buskirk, E., 428, 505a; 603, 505b
Buskirk, E. R., 88, 506; 316, 476
Butler, T. C., 1325, 1387
Butler, W. M., Jr., 1503, 1452; 1529, 1453
Butts, J. S., 183S
Buxbaum, J. D., 89, 371
Buxnitsky, A., 2007, 2045
Byerrum, R. U., 780, 1127
Byron, J. W., 1290, 122

Cadmus, R. A., 1400, 1418; 1574, 1535
Cafruny, E., 1371, 1584
Cahill, G. F., Jr., 691, 1063
Calhoon, T. B., 90, 392
Calhoun, D. W., 1422, 1620
Callow, A. D., 1509, 19
Calloway, D. H., 1772, 1844
Calvary, E., 278, 43
Cameron, A., 1326, 1522
Cammermeyer, J., 656, 420
Campbell, A. H., Jr., 1400, 1418; 1574, 1535
Campbell, B., 91, 740
Campbell, D. C., 1654, 1786
Campbell, D. H., 679, 1089; 1917, 2025
Campbell, E. W., 92, 664
Campbell, J., 102, 523
Campbell, J. A., 1842, 1840
Canahuati, S. M., 1587, 1644
Cander, L., 67, 552; 93, 356
Canellakis, E. S., 745, 1116
Cantarow, A., 94, 1260; 460, 408
Cantoni, G. L., 746, 1245
Cantrell, W., 1327, 1548
Canzanelli, A., 95, 111
Caputto, R., 1013, 1277
Carbon, J. A., 1278, 888
Carlat, L., 906, 906
Carleton, A., 19; 576, 675
Carlson, G. L., 1022, 1248
Carlson, L. D., 130, 537; 462, 262
Carlsson, A., 1573, 1629
Carnes, W. H., 1655, 1749
Carpenter, E., 1864, 1936
Carpenter, F. G., 96, 249
Carpenter, F. H., 747, 1109
Carpenter, H. M., 339, 687
Carpenter, K. J., 1773, 1806
Carr, C. J., 1345, 1451
Carroll, K. K., 97, 5
Carroll, R. T., 64, 737; 98, 153
Carson, S., 1310, 1666
Carter, C. E., 748, 839
Carter, H. E., 868S
Carter, Y., 1656, 1726; 1690, 1725
Cartwright, G. E., 1801, 1887
Case, J. D., 1657, 1712
Case, R. B., 71, 381; 99, 380; 577, 288; 586, 212
Casselman, W. G. B., 537, 368; 1092, 447
Cassin, S., 100, 581
Caster, W. O., 15, 104; 749, 135
Castiglioni, G., 1115, 1377; 1225, 1790
Castro-Mendoza, H., 821, 1066
Catchpole, H. R., 555, 2026
Cavalieri, L. F., 750, 1043
Cavenaugh, D. J., 877, 931
Cavert, H. M., 101, 740a
Celander, D. R., 948, 118
Cerceo, E., 2010, 826
Chace, J. A., 149, 553
Chaikof, L., 102, 523
Chaikoff, I. L., 357, 446; 1856,
Chakales, H. H., 142, 652
Chaloupka, M., 1774, 1815
Chambers, A. H., 103, 662
Chance, B., 751, 1236
Chang, C. C., 752, 1210
Chang, M. C., 104, 485
Chang, M. L. W., 1775, 1811
Chapin, J. L., 105, 679
Chargaff, E., 1153, 1051
Charipper, H. A., 82, 739
Charles, M. L., 1328, 1482
Chart, J. J., 106, 516
Chase, M. W., 2029S
Chaudhry, A. P., 107, 644
Cheek, D. B., 108, 397
Cheek, W. R., 268, 366

Cheever, F. S., 1901, **158**
Cheldelin, V. H., 940, **1238**; 943, **907**
Chen, G., 1329, **1668**; 1330, **1432**
Chen, J. Y. P., 1331, **498**; 1332, **1669**
Chen, K. K., 1345, **1396**
Chen, S. D., 1870, **1903**
Chen, Y. M., 760, **59**
Cheng, A. L. S., 1776, **1851**
Cheng, C. S., 329, **766**
Cheng, C. W., 753, **1199**
Cherbakoff, A., 109, **493**
Chernick, S. S., 784, **1278**
Chernish, S. M., 1333, **1464**
Chervenka, C. H., 1256, **1111**
Chessin, M., 1334, **1637**
Child, G. P., 1335, **1647**
Childs, A. W., 120, **451**; 645, **330**
Chin, P. H., 2000, **162**
Chinard, F. P., 755, **215**
Chiodi, H., 110, **513**
Chodos, R. B., 1123, **1322**
Choitz, H. C., 756, **1125**
Chow, B. F., 779, **1787**; 1814, **1826**; 1850, **1823**
Christensen, E. K., 1600, **1697**
Christensen, H. N., 1104, **1137**
Christensen, J., 1614, **1699**; 1336, **1437**
Christian, H. H., 1337, **1536**; 1479, **1534**
Christian, J. J., 1658, **1733**
Christman, A. A., 768, **921**
Christy, N. P., 323, **405**
Chu, L. W., 1903, **1955**
Chu, M. W., 1272, **1383**
Chusid, J. G., 111, **741**
Ciesielski, J., 504, **784**
Clark, D. A., 757, **1074**
Clark, G. M., 1596, **1409**
Clark, H., 1777, **1862**
Clark, J. W., 628, **28**
Clark, J. W., Jr., 1657, **1712**
Clark, R. T., Jr., 112, **584**; 622, **586**; 650, **585**
Clark, S. S., 87, **1824**
Clark, W. G., 472, **653**
Clark, W. H., Jr., 1659, **1769**
Clarke, D. W., 758, **905**
Clarke, G. E., 244, **33**
Clarke, N. P., 113, **505**; 671, **504**
Clasen, R., 114, **272**
Clayton, C. C., 759, **93**
Clegg, K. M., 1773, **1806**
Clements, G. R., 1660, **1763**
Clements, J. A., 115, **232**
Clements, M. M., 226, **390**
Clemmons, J. J., 1661, **1784**
Clifton, K. H., 1662, **127**
Cline, R. E., 818, **1114**
Clouet, D. H., 1057, **998**
Cobb, L. A., Jr., 371, **207**
Cobb, P., 411, **671**
Coburn, A. F., 1902, **2055**
Cochin, J., 1288, **1443**
Cochran, D. G., 517, **1152**
Cochran, K. W., 1903, **1955**
Code, C. F., 116, **606**; 427, **607**
Coffin, D. L., 1954, **1999**
Cohen, B. D., 117, **326**
Cohen, E., 933, **895**
Cohen, J. J., 118, **295**
Cohen, L. A., 119, **421**
Cohen, P. P., 869, **1298**
Cohen, S. I., 1904, **1910**
Cohen, S. S., 864, **1117**
Cohn, D. V., 1338, **1222**
Cohn, G. L., 1018, **881**
Cohn, S. H., 1339, **197**; 1794, **30**
Cole, L. J., 1340, **71**
Coleman, R. D., 760, **59**
Collazos, C., 1883, **1916**
Collins, D. M., 306, **282**
Collins, V. P., 1531, **76**
Colowick, S. P., 934, **987**
Comar, C. L., 1881, **1865**
Combes, B., 120, **451**; 645, **330**
Combs, A. M., 738, **1281**
Condliffe, P. G., 761, **1326**
Congdon, C. C., 419, **165**
Coniglio, J. G., 762, **1288**
Conley, C. L., 322, **155**
Conn, E. E., 763, **928**
Conn, H. L., Jr., 1520, **1471**
Connelly, C. M., 121, **253**
Conner, P. K., Jr., 1341, **1604**
Conrad, E., 1342, **1056**
Conrad, M. C., 422, **465**
Conroy, C., 1343, **1524**
Conte, F. P., 1663, **1793**
Contopoulos, A. N., 122, **521**
Conwell, D. P., 1914, **2033**
Conzelman, G. M., Jr., 1344, **1670**
Cook, E. B., 1604, **187**
Cook, J. L., 764, **813**
Cook, J. S., 62, **698**
Cooke, P., 114, **272**
Coon, J. M., 1547, **190**
Coon, M. J., 694, **1068**
Cooper, C., 765, **1015**
Cooper, D. Y., 123, **300**
Cooper, J. A. D., 124, **217**
Cooper, T., 125, **650**
Copeland, D. H., 1778, **14**
Copeland, J. E., 1541, **1401**
Copley, A. L., 126, **742**
Corcoran, A. C., 409, **566**; 1354, **1583**
Corcoran, J. W., 766, **1354**
Cordes, F. L., 1449, **626**
Cordoba, F., 885, **1957**
Cormier, M. J., 127, **642**; 509, **814**
Cornwell, D. G., 365, **1343**; 853, **84**
Corristan, E. C., 1905, **1994**
Corson, E. O'L., 128, **350**
Corson, S. A., 128, **350**
Corwin, L. M., 1664, **1289**
Cosmides, G. J., 1345, **1451**
Costa, E., 202, **711**; 203, **755**
Costa, F., 816, **100**
Cotlar, A. M., 279, **760**
Cotlove, E., 129, **443**
Cotten, M. deV., 1319, **213**; 1346, **284**
Cottle, W., 130, **537**
Cotzias, G. C., 1725, **193**
Couch, J. R., 1099, **1855**; 1789, **1872**
Coulomb, B., 1169, **1247**
Coulson, R. A., 291, **762**; 769, **437**
Cournand, A., 73, **309**; 214, **568**; 645, **330**
Couves, C. M., 1347, **1581**
Covey, B. M., 163, **713**
Cowan, C. R., 1092, **447**
Cowgill, R. W., 770, **1177**
Cox, G., 1737, **1776**
Cox, R. P., 1783, **1838**
Coxe, W. S., 131, **266**
Craig, J. M., 1665, **1760**
Craig, J. W., 132, **196**
Cramer, J. W., 1779, **1927**
Crampton, C. F., 771, **1045**
Crandall, D. I., 772, **1172**
Crandall, E., 133, **743**
Crane, F. L., 854, **1231**
Crawford, E. S., 1347, **1581**
Crescitelli, F., 134, **526**
Crespi, H., 984, **966**
Cress, E. A., 961, **109**
Crokaert, R., 773, **1299**
Cronheim, G., 1348, **1633**
Cronkite, E. P., 500, **111a**
Crotty, W. J., 135, **643**
Crout, J. R., 1689, **1740**
Crowley, W. P., Jr., 207, **570**
Cuajunco, F., Jr., 620, **497**
Cuchie, F. T., 1349, **1580**
Cuckler, A. C., 1350, **1546**
Cueto, C., Jr., 1363
Cunningham, D. J., 1304, **1625**
Curry, D. M., 701, **194**
Curtis, J. M., 1222, **1649**
Cushman, W. F., 1906, **2064**

Dacksel, L. J., 1048, **844**
DaCosta, F. M., 1499, **1**
Dagg, C. P., 774, **95**
Dagg, M. K., 1780, **17**
Dahl, L. K., 1666, **1735**
Dahl, N., 523, **370**
Dalby, A., 1029, **119**
Dale, H. E., 136, **628**
Dallam, R. D., 241, **204**
Dam, R., 1840, **1886**
Danauskas, J. X., 1899, **1988**
D'Angelo, S. A., 137, **744**
Daniel, J. W., 1667, **935**
Daniel, L. J., 1021, **168**
Daniels, M., 793, **854**
Darby, T. D., 1351, **289**
Darby, W. J., 1830, **1933**
D'Asaro, B. S., 1352, **1436**
Dattilo, J. V., 1670, **1710**
Daughaday, W. H., 775, **1357**
Davenport, F. M., 1907, **2014**; 1930, **2013**
Davenport, H. W., 138, **608**
David, N. A., 1523, **1690**
Davidsohn, I., 2007, **2045**; 1908, **2046**
Davidson, A. G., 829, **84**
Davidson, C. S., 728, **1282**
Davidson, D. G., 452, **293**
Davidson, I. W. F., 519, **712**
Davidson, J. D., 1577, **1440**
Davies, D. D., 958, **122**
Davin, J. C., 1539, **1463**; 1597, **1537**
Davis, A. K., 139, **669**
Davis, D. L., 1353, **173**
Davis, F. F., 776, **1362**
Davis, G. D., 140, **419**
Davis, H. L., 141, **306**
Davis, J., 906, **986**
Davis, J. E., 1403, **1675**
Davis, J. H., 777, **1363**
Davis, J. O., 22, **214**; 252, **280**
Davis, J. R., 5, **510**
Davis, J. W., 778, **1241**
Davis, L., 390, **774**
Davis, O. F., 1510, **63**
Davis, R. L., 779, **1787**
Dawe, A. R., 373, **546**
Day, E. D., 1896, **2001**
Day, E. J., 1808, **1**
Day, P. L., 795, **164**; 1781, **1873**; 1784, **1828**; 1869, **1875**; 1885, **1895**
Dayton, H. B., 1309, **1593**
Deal, C. P., Jr., 142, **652**
Deane, H. W., 204, **527**

DeBakey, M. E., 1347, **1581**
de Beer, E. J., 1508, **1655**; 1826, **1894**
de Bernard, B., 699, **1232**
de Bodo, R. C., 8, **312**; 637, **311**
DeBoer, B., 1448, **1513**
Debons, A. F., 18, **454**
de Bruin, C. H., 1200, **1159**
deCastro, F. T., 1259, **1381**
Decibus, F., 1513, **90**
Decker, C. F., 780, **1127**
Decker, L. E., 781, **1128**
DeEds, F., 724, **1274**; 1313, **1667**; 1627, **1397**
De Giovanni, R., 1276, **1183**
de Groot, J., 258, **416**
de Gubareff, T., 1385, **1457**
Delafield, F., 1130, **1206**
del Campillo, A., 782, **923**
De Ley, J., 794, **950**
Delgado, J. M. R., 143, **329**
del Greco, F., 1354, **2583**
DeLong, C. W., 1191, **1307**
DeLong, D. C., 1777, **1862**; 1782, **1864**
De Luca, H. F., 783, **1280**
deMaar, E. W. J., 1355, **1571**
De Meio, R. H., 784, **1066**
Dement, W., 144, **418**
DeMeyers, M., 1333, **1464**
Deming, Q., 1356, **1636**
DeMoss, J. A., 785, **875**
Denison, A. B., Jr., 145, **745**; 146, **337**; 571, **433**
Denison, M. E., 147, **450**
Dennis, E., 1455, **1603**
Dennis, W. H., 148, **610**
Denslow, J. S., 149, **553**
Depalma, R. E., 1140, **862**
Depocas, F., 150, **540**
Derby, M. B., 1829, **1917**
De Ritter, E., 1833, **1877**
De Salva, S. J., 1357, **1533**
Despopoulos, A., 151, **292**
Dessauer, H. C., 786, **968**
Detrick, L. E., 1358, **1615**
Deuel, H. J., Jr., 760, **59**; 1759, **11**; 1776, **1851**; 1783, **1838**
Deutsch, A., 787, **1213**
Deutsch, H. F., 788, **1194**
Devi, A., 1278, **888**
DeVito, J. L., 152, **423**
Dewey, K. F., 1139, **1197**
Dewey, W., 569, **2003**
Dexter, L., 371, **207**
Deyrup, I., 153, **439**
Diao, E., 1819, **1922**
Dick, E., 1870, **1903**
Dickman, S. R., 789, **1475**
Dickos, J. F., 1901, **158**
Didisheim, P., 154, **151**
Dieckert, J. W., 1100, **1294**
Dietrich, L. S., 1078, **885**
Di Ferrante, N., 1102, **1309**
Dill, W. A., 155, **746**; 237, **1478**
Dille, J. M., 1395, **1651**
Diller, E. R., 951, **855**
Di Luzio, N. R., 156, **668**; 157, **747**
DiNella, R. R., 158, **663**
Dinning, J. S., 1781, **1873**; 1784, **1828**; 1869, **1875**
DiPalma, J. R., 159, **488**
Diache, Z., 790, **948**
Diserens, H. W., 451, **208**
DiStefano, V., 1359, **1573**
Dixon, F. J., **2031S**
Dobson, E. L., 160, **333**
Doctor, V. M., 791, **1243**
Doczi, J., 792, **236**
Dodson, G., 905, **1242**
Dodson, M. J., 674, **1180**
Doggett, M. C., 1430, **1578**
Dohan, F. C., 611, **592**
Doherty, D. G., 1154, **891**
Doisy, E. A., 1111, **1168**
Doisy, E. A., Jr., 793, **854**
Domanski, T. J., 161, **514**
Domino, E. F., 1442, **1431**
Domino, E. P., 1330, **1432**
Domizi, D. B., 465, **302**
Donaldson, D. M., 1959, **157**
Dorfman, R. I., 722, **1070**; 723, **1158**; 1134, **1160**
Doty, R. W., 514, **467**
Doudney, C. O., 162, **70**
Doudoroff, M., 794, **950**
Dougherty, T. F., 298, **143**
Doughty, S., 1407, **1465**
Douglas, D. E., 846, **1477**
Douglas, J., 999, **816**
Douglass, C. D., 795, **164**
Doull, J., 1360, **27**; 1411, **1677**
Dounce, A. L., 1075, **833**
Drabkin, D. L., 1006, **1283**
Dratz, A. F., 163, **713**
Dreifus, L., 579, **503**
Dreisbach, R. H., 1361, **1671**
Drill, V. A., 1422, **1620**; 1592, **1654**
Drisko, R. W., 1135, **820**
Driver, R. L., 1412, **1606**
Drobeck, H. P., 1967, **1943**
Drucker, W. R., 132, **196**
Drummond, G. I., 1189, **1062**
Druskin, M. S., 228, **522**
Drutz, E., 1674, **1752**
Dryer, R. L., 796, **1335**
D'Souza, P. B., 1535, **1531**
Dubin, A., 1716, **1772**
Dubnick, B., 1334, **1637**
Dubnoff, J., 679, **1089**
DuBois, K. P., 1504, **1688**; 1518, **74**
Dubuc, J., 1163, **1217**
Duff, F., 47, **388**
Duggan, E. L., 797, **1049**
Dulit, E., 829, **846**
Dumm, M. E., 164, **203**; 480, **299**
Dunlap, M. K., 1459, **1681**
Dunn, C. E., 1362, **1618**
Dunnebacke, T. H., 798, **1971**
Dünnenberger, M., 802, **1353**
Durbin, R. P., 887, **614**
Durell, J., 746, **1245**; 799, **1028**
Durham, W. F., 1363, **1407**
Dury, A., 165, **53**; 166, **748**
Dury, M., 166, **748**
Duvall, R. C., 779, **1787**
Dwyer, F. M., 551, **78**
Dyer, A. E., 1364, **1415**
Dyrenfurth, I., 800, **1773**

Eades, C. H., Jr., 801, **1273**
Eadie, G. S., 167, **334**
Eagle, H., 1519, **1040**; 1909, **1968**
Earl, A. E., 1522, **1658**
Earle, D. P., 124, **217**
Easterday, O. D., 65, **106**; 500, **111a**
Ebaugh, F. G., 1165, **1328**
Ebaugh, F. G., Jr., 505, **639**
Ebin, L. M., 235, **757**
Eble, J. N., 168, **472**
Eckfeld, D. K., 1365, **1468**
Eckhardt, E., 1551, **1611**
Eckhaus, E., 292, **763**
Eckstein, H. C., **1785**; 742, **1809**
Eckstein, J. W., 2032, **631**
Eckstein, R. W., 169, **315**
Edelhoch, H., 170, **1105**
Edelman, I. S., 171, **708**
Edelmann, A., 53, **314**; 82, **739**; 485, **685**
Ederstrom, H. E., 172, **630**
Edmonds, E. J., 702, **963**
Edmonds, L. C., 1659, **1769**
Edsall, G., 1916, **2035**; 1965, **2070**; 2004, 2036
Edsall, J. T., 931, **971**
Edwards, C. H., 1785, **1825**
Edwards, L. E., 173, **703**
Egan, R., 866, **1110**
Egerton, J. R., 1350, **1546**
Eggman, L., 1220, **1102**
Ehrenstein, M. R., 802, **1353**
Ehrich, W. E., 1668, **1759**
Eich, S., 1026, **1142**
Eichel, H. J., 174, **749**
Eichelberger, L., 803, **555**
Eik-Nes, K. B., 804, **360**
Eilberg, R., 1029, **119**
Eiler, J. J., 805, **1151**
Einbinder, J. M., 175, **317**
Einset, B. M., 1829, **1917**
Eisenberg, F., Jr., 806, **953**
Eisenbrandt, L. L., 33, **732**
Elder, T. D., 1644, **1715**
Eldred, E., 176, **750**
Eldrup-Jørgensen, Sv., 177, **751**
Eliasson, S. G., 606, **244**
Elion, G. B., 807, **936**
Elisberg, B. L., 1935, **2034**
Ellenbogen, E., 1188, **1103**
Ellenbogen, L., 808, **1785**
Ellinger, F., 1366, **26**
Elliott, H. W., 1281, **1497**
Elliott, W. H., 1000, **851**
Ellis, C. H., 178, **752**
Ellis, J. P., 21, **512**
Ellis, J. P., Jr., 179, **681**; 643, **680**
Ellis, M. E., 1340, **71**
Ellman, G. L., 1367, **1559**
Elmadjian, F., 180, **649**
Elrick, H., 1182, **1153**
Elvehjem, C. A., **992S**; **1867S**; **1825**, **1858**
Elwyn, D., 928, **1217**
Ely, T. S., 181, **719**
Embree, N. D., 1809, **1847**
Emerson, G. A., 1636, **1549**
Emerson, Gladys A., 1709, **67**; 1786, **1839**
Emerson, G. M., 182, **265**
Emerson, J. D., 182, **265**
Enders, A. C., 83, **414**
Engel, F. L., 183, **195**
Engel, L. L., 966, **1268**; 1134, **1160**
Engel, R. W., 1262, **1393**
England, R. W., 5, **510**
Englard, S., 809, **1149**
Engle, R. R., 1135, **820**
Englesberg, E., 1910, **1208**
Enns, T., 755, **215**
Enroth, C., 204, **527**
Entenman, C., 184, **659**; 249, **77**
Epanchin, V., 200, **309**
Erdős, E. G., 1289, **172**; 1368, **1639**; 1568, **174**

Erlich, F., 89, **371**
Ernster, L., 726, **1013**
Ershoff, B. H., 1783, **1838**
Ervin, F. R., 84, **328**
Eschenbrenner, A. B., 1669, **1719**
Esser, B., 1786, **1839**
Essex, H. E., 602, **519**
Essig, A., 318, **459**
Essig, C. F., 185, **379**; 1377, **1505**
Estabrook, R., 810, **1235**
Evans, C., 1323, **954**
Evans, E. A., Jr., **872S**; 855, **22**
Evans, F. G., 186, **424**
Evans, H. M., 1787, **1817**; 1844, **1827**
Evans, J. D., 187, **660**
Evans, R. A., 1357, **1533**
Evarts, E. V., 188, **534**
Everett, G. M., 1369, **1427**; 1599, **1575**
Everett, J. W., 189, **413**
Eversole, W. J., 190, **348**
Ewell, L. H., 1694, **130**
Ewy, H. G., 327, **654**

Fabing, H. D., 1370, **1672**
Fairbairn, D., 1059, **909**
Fairbanks, R., 811, **1165**
Fairhurst, A. S., 812, **1264**
Fairley, J. L., 804, **1115**
Falzone, J. A., Jr., 448, **229**
Farah, A., 1371, **1584**
Farber, M. B., 1929, **2008**
Farr, R. S., 1911, **2002**
Farrall, W. R., 295, **336**
Farrand, E. A., 575, **677**
Farrell, G. L., 191, **362**
Featherstone, R. M., 1322, **171**; 1388, **1659**; 1520, **1471**
Fedor, E. J., 1670, **1710**
Feeney, G. C., 1372, **1568**
Feeney, R. E., 813, **940**
Feigen, G. A., 192, **576**
Feinberg, H., 342, **769**
Feinberg, R., 1912, **2000**
Feinstein, R. N., 814, **828**
Feist, E., 193, **753**
Feldman, H. A., 1913, **2071**
Feldman, I., 1359, **1573**
Feldman, J. D., 1671, **1729**
Feller, D. D., 193, **753**
Felts, J. M., 194, **1292**
Feng, Y. S. L., 1241, **1319**
Fenn, W. O., 227, **756a**; 231, **756b**
Fenton, P. F., 1788, **1901**
Ferguson, F. P., 195, **515**
Ferguson, I. D., 196, **725**
Ferguson, J., 197, **754**
Ferguson, J. K. W., 1364, **1415**
Ferguson, R. W., 198, **273**
Ferguson, T. M., 1789, **1872**
Feringa, E. R., 656, **420**
Fernandez-Guardiola, A., 293, **533**
Ferris, B. G., Jr., 199, **225**
Ferruggia, T., 1343, **1524**
Fiala, A., 1672, **1728**
Fiala, S., 1672, **1728**
Field, J. B., 806, **953**; 815, **1054**; 816, **100**
Figge, F. H. J., 683, **125**
Figurovsky, N., 1406, **1538**
Filler, D. A., 816, **100**
Fillios, L. C., 1763, **8**; 1790, **10**
Finamore, F. J., 508, **785**
Fine, M., 306, **282**
Finerty, J. C., 458, **237**
Fink, B. R., 200, **309**
Fink, G. I., 843, **1205**
Fink, K., 817, **1113**; 818, **1114**
Fink, R. M., 817, **1113**; 818, **1114**
Finlayson, J. S., 1791, **1801**
Finney, C. R., 160, **333**
Fischer, E. H., 956, **1092**
Fischer, G. A., 618, **903**
Fisher, B., 1670, **1710**
Fisher, E. R., 1670, **1710**
Fisher, L., 421, **44**
Fishman, A. P., 214, **568**; 615, **355**
Fishman, J. B., 358, **154**
Fishman, W. H., 819, **1027**
Fiskin, R., 1128, **1126**
Fitzgerald, J. E., 820, **112**
Fitzhugh, O. G., 1315, **1404**; 1373, **1405**
Flaks, J. G., 1240, **912**
Flavin, M., 821, **1086**
Fleisher, J. H., 822, **169**
Fleming, D., **401S**
Fleming, D. G., 201, **530**
Flesher, A. M., 1410, **1607**
Flock, E. V., 823, **1321**
Florini, J. R., 1227, **832**
Flynn, F. V., 752, **1210**
Foà, P. P., 202, **711**; 203, **755**
Fodor, P. J., 824, **56**
Fogg, D. E., 1350, **1546**
Fogh, J., 825, **1956**
Folch, J., 826, **996**
Foldes, F. F., 1289, **172**; 1353, **173**; 1368, **1639**; 1374, **175**; 1535, **1531**; 1568, **174**
Foley, J., 1152, **1064**
Foley, J. O., 182, **265**
Folk, G. E., Jr., 492, **545**
Folkers, K., 1852, **1890**
Folse, R., 333, **386**; 453, **483**
Foltz, E. L., 1375, **1553**
Forbes, A., 204, **527**
Forbes, I., 19; 1292, **1664**
Forbes, R. M., 1792, **1902**
Formusa, K., 708, **1347**
Forster, R. E., 93, **356**
Foster, J. W., 1008, **1371**
Foster, W. C., 205, **460**
Foulkes, E. C., 827, **444**
Foulks, J., 206, **298**
Fouts, J. R., 1376, **1393**
Fowler, D. I., 1871, **1861**
Fowler, W. S., 141, **306**
Fowlks, W. L., 1200, **1159**
Fox, C. L., Jr., 175, **317**
Fox, H., 1874, **1908**
Fox, H. M., 1793, **1845**
Fox, I. J., 207, **570**
Fox, J. J., 828, **840**
Fox, J. P., 1914, **2033**
Fox, M. R. S., 1767, **1850**
Fox, S. W., 1214, **892**
Fox, W., 786, **968**
Fradkin, R., 1578, **1446**
Fraenkel, G., 835, **1275**; 1816, **1276**
Francis, R. D., 1669, **1719**
Francis, T., Jr., 1903, **1955**
Frank, M. H., 208, **564**
Frank, S., 135, **643**
Franke, F. E., 209, **335**
Frankel, S., 1752, **1746**
Franklin, E. C., 1237, **976**
Franklin, M., 1961, **2073**
Frantz, I. D., Jr., 829, **846**
Fraser, H. F., 1377, **1505**; 1378, **1673**
Fraser, I. M., 1379, **1545**
Frawley, J. P., 1380, **1403**
Fredericks, J., 183, **195**
Fredrickson, D. S., 830, **850**
Free, A. H., 678, **1264**
Free, H. M., 678, **1264**
Freeburg, B., 770, **1177**
Freedland, R. A., 873, **843**
Freeman, G., 242, **186**; 331, **307**
Freeman, L., 831, **145**
Freeman, M. V., 1381, **1394**
Freeman, S., 654, **498**
Fregly, M. J., 210, **559**; 316, **476**
Frenkel, J. K., 1673, **1714**
Freter, G. L., 2012, **1977**
Freund, J., **1946**
Fridovich, I., 832, **1010**
Friedemann, T. E., **184S**
Frieden, E., 833, **646**
Frieden, E. H., 834, **1075**
Friedland, B., 1285, **1663**; 1510, **63**
Friedman, H., 1971, **917**
Friedman, J. J., 211, **311**
Friedman, M., 213, **756**; 1756, **2018**; 1915, **1946**
Friedman, M. H. F., 212, **611**
Friedman, N. B., 1674, **1752**; 1748, **1711**
Friedman, S., 835, **1275**
Friess, S. L., 1604, **187**
Frisch, H., 1128, **1126**
Fritts, H. W., Jr., 214, **568**
Fritz, I. B., 215, **448**
Fritz, J. C., 1794, **1839**
Froeb, H. F., 216, **684**
Froesch, E. R., 217, **588**
Froese, G., 218, **634**
Frohman, C. E., 1795, **1831**
Fromm, H. J., 1382, **1039**
Frost, D. V., 1178, **1888**; 1855, **1855**
Frumin, A. M., 1118, **1954**
Frumin, M. J., 1563, **1430**
Fry, R., 1818, **1897**
Fryer, J. H., 1796, **1803**
Fuentes, J., 1383, **1456**; 1462, **1455**
Fugazza, J., 1497, **1687**
Fujikawa, B., 1379, **1545**
Fujimoto, J. M., 1384, **1445**
Fukushima, D. K., 836, **1359**
Fulchiero, E., 44, **733**
Fuld, M., 837, **1029**
Fuller, G. R., 219, **596**
Fuller, R. K., 1339, **107**
Fulton, G. P., 51, M.P., p. 628; 52, **73**
Funckes, A. J., 1212, **1345**
Funk, C., 824, **56**; 838, **1365**
Furchgott, R. F., 1385, **1457**
Furman, R. H., 839, **66**
Furth, J., 1662, **127**; 1742, **1748**
Futterman, S., 840, **1334**
Fuwa, H., 841, **1093**
Fuyat, H. N., 1380, **1403**

Gabourel, J. D., 1386, **1439**
Gabrio, B. W., 1204, **1079**
Gaebler, O. H., 842, **1240**
Gaensler, E. A., 414, **228**
Gaertner, R., 1399, **1705**
Gaines, D. S., 941, **837**
Gaines, S., 1916, **2035**; 2004, **2036**
Gajdusek, D. C., 1969, **1975**; 1996, **1991**
Gal, E. M., 812, **1364**
Galambos, R., 627, **597**
Galansino, G., 202, **711**; 203, **755**
Galdston, M., 220, **357**

Galkin, T. W., 387, **524**; 388, **773**
Gallagher, T. F., 727, **1161**; 836, **1359**; 1114, **848**
Gallo, D. G., 767, **1775**
Galum, A. B., 835, **1275**
Ganis, F. M., 1675, **1166**
Gaon, J., 2014, **1989**
Garcia-Arocha, H., 264, **146**
Gardella, J. W., 221, **79**
Gardier, R. W., 1387, **1523**
Gardiner, R. C., 1165, **1226**
Garner, R. L., 843, **1205**
Garren, H. W., 222, **313**; 1811, **15**
Garst, J. B., 844, **406**
Garvey, J. S., 1917, **2025**
Garvin, J. E., 1797, **1006**
Gaskins, J. R., 1530, **1627**
Gass, G. H., 1222, **1649**
Gatt, S., 845, **1008**
Gauchat, R. D., 1388, **1659**
Gaunt, R., 106, **516**
Geddes, I. C., 846, **1477**
Geer, J. C., 1676, **1744**
Gehenio, P. M., 223, **625**
Geiger, A., 224, **375**
Geiger, G. L., 1921, **1794**
Geiger, R. S., 225, **378**
Geiling, E. M. K., 1295, **1591**
Geller, D. M., 847, **1018**
Geller, J., 220, **357**
Gemmill, C. L., 1389, **463**; 1390, **1674**
Genest, K., 1445, **175**
Gennaro, J. F., Jr., 226, **390**
Genuth, S. M., 785, **875**
George, R., 1281, **1497**; 1391, **1583**
Gerard, R., **279S**
Gerber, P., 1928, **2011**
Gergely, J., 848, **1104**
Gerhardt, P., 1914, **2033**
Gerheim, E. B., 1918, **2058**
Gerschman, R., 227, **756a**; 231, **756b**
Gershberg, H., 228, **522**
Gershoff, S. N., 1798, **1926**
Gershon-Cohen, J., 1014, **1372**; 1836, **1915**
Gerst, P. H., 469, **429**
Gerstner, H. B., 76, **134**; 229, **105**
Gesler, R. M., 1392, **1525**
Gest, H., 1064, **958**
Gey, G. O., 455, **398**
Gey, M. K., 455, **398**
Ghosh, J. J., 849, **1169**
Giarman, N. J., 1393, **1632**
Gibbs, M., 1096, **906**
Gibson, D. M., 850, **1287**
Giebisch, G., 230, **219**
Gifford, G. E., 1919, **1969**
Gilbert, D. L., 227, **756a**; 231, **756b**
Gilbertson, E. V., 914, **1136**
Gill, T. J. III, 566, **619**; 1677, **1788**
Gilmore, J. P., 232, **670**
Gilmore, L. O., 205, **460**
Gilmour, C. M., 1238, **1379**
Gilvarg, C., 851, **1304**
Gimbel, N. S., 1851, **1856**
Ginoza, W., 1120, **1044**
Ginsberg, H. S., 1920, **1942**; 2025, **2069**
Ginsburg, V., 852, **925**
Ginski, J. M., 233, **618**
Girerd, R. J., 234, **310**
Gitlin, D., 853, **84**
Glaser, G. H., 580, **471**
Glass, G. B. J., 235, **757**; 236, **609**; 1589, **1641**
Glassman, J. M., 1394, **1485**
Glaubach, S., 1641, **137**
Glazko, A. J., 155, **746**; 237, **1478**
Glenn, J. L., 238, **758**; 854, **1231**
Glinos, A. D., 239, **455**
Glitzer, M. S., 240, **464**
Goebel, W. F., **1556**
Gofman, J. W., 1291, **88**
Gogerty, J. H., 1395, **1651**
Goh, K., 241, **204**
Golbey, M., 1396, **1622**
Gold, A. J., 242, **186**
Gold, G. L., 566, **619**
Gold, H., 1404, **1555**
Goldbaum, L. R., 1397, **1442**
Goldberg, H., 243, **285**
Goldberg, L. I., 1398, **1416**
Goldensohn, E., 1563, **1430**
Goldfeder, A., 244, **33**
Goldfine, H., 855, **22**
Goldhamer, R. E., 619, **657**
Goldie, H., 1921, **1794**; 1922, **131**
Goldin, A., 554, **1212**
Goldman, A., 1328, **1482**
Goldman, D. E., 181, **719**
Goldman, D. S., 856, **1219**
Goldman, P., 245, **438**
Goldrich, A. D., 1882, **1876**
Goldsmith, E. D., 246, **759**; 1223, **1920**; 1799, **1814**
Goldstein, L., 1497, **1687**
Goldstein, M. H. Jr., 353, **600**
Goldstein, M. S., 55, **458**; 247, **361**
Goldsworthy, P. D., 248, **807**
Goldthwait, D. A., 857, **911**
Goldwasser, E., 858, **1253**
Goldwater, W. H., 249, **77**
Gollan, F., 250, **338**
Gollub, S., 251, **45**
Golubow, J., 859, **1034**
Gong, J. K., 1339, **107**
Gongaware, M. S., 204, **527**
Gonzalas, L., 1883, **1916**
Gonzalez, I. E., 839, **66**
Gomoll, A. W., 1453, **1487**
Goodall, McC., 356, **655**
Goodgal, S. H., 1923, **2059**
Goodkind, M. J., 22, **214**; 252, **280**
Goodland, Ruth, L., 1645, **1758**
Goodman, H., 1399, **1705**; 1908, **2046**
Goodman, H. C., 1300, **1755**
Goodman, I., 860, **841**
Goodman, M., 1924, **1981**
Gordon, A. S., 53, **314**; 485, **665**; 601, **793**
Gordon, H. H., 1846, **1874**
Gordon, J., 542, **974**
Gordon, J. G., 1921, **1794**
Gordon, S. M., 1309, **1593**
Gosselin, R. E., 253, **667**; 1386, **1439**
Gotch, F., 171, **708**
Gotterer, G., 1258, **897**
Gottesman, L., 772, **1172**
Goucher, C. R., 861, **1366**
Gould, R. G., 862, **1367**
Gourley, D. R. H., 254, **399**
Gourzis, J. T., 1348, **1633**
Govier, W. M., 1551, **1611**
Grabar, P., 1181, **1958**
Grabowski, R., 1254, **1065**
Grace, J. B., 207, **570**
Grace, R. A., 563, **672**
Grad, B., 17, **323**
Graeme, M. L., 1400, **1418**
Graf, L., 1093, **1960**
Graham, J. B., 1951, **160**
Graham, L., 208, **564**
Gran, F. C., 783, **1280**
Grande, F., 255, **500**; 428, **505a**; 603, **505b**
Grannis, G. F., 1145, **973**
Grant, W. C., 392, **624**
Gravenstein, J. S., 1401, **1496**
Graves, J. L., 978, **818**
Gray, B. L., 1324, **1388**
Gray, C. L., 719, **658**
Gray, E. H., 1612, **1612**
Gray, I., 863, **1308**; 1397, **1442**
Gray, W. D., 1402, **1540**
Grayston, J. T., 1756, **2018**
Green, A. A., 1017, **960**
Green, D. E., 974, **1016**
Green, D. M., 234, **310**; 1557, **33**; 1558, **1695**
Green, F. O., 814, **838**
Green, H. D., 142, **652**; 145, **745**; 1472, **1425**
Green, I., 256, **216**
Green, J. D., 258, **416**
Green, J. W., 257, **621**
Green, M., 864, **1117**
Green, S., 819, **1027**
Green, V. A., 1403, **1675**
Greenberg, D. M., 926, **1620**; 1085, **883**
Greenberg, L. D., 865, **1832**; 1832, **1934**
Greene, C. S., 286, **761**
Greene, L. C., 259, **724**; 378, **432**
Greenstein, J. P., 718, **1908**
Greenwald, I., 1800, **1929**
Greep, R. O., 359, **520**
Gregg, N. C., 1925, **1941**
Gregory, J. D., 847, **1018**
Greif, R. L., 260, **347**
Greiner, T., 1404, **1555**
Grenan, M. M., 562, **161**
Grenell, R. G., 261, **320**
Griesemer, E. C., 1405, **1489**
Griffin, O. R., 1735, **1**
Griffith, W. H., **179S**
Grimmett, P., 698, **1076**
Grindlay, J. H., 823, **1321**
Grisolia, S., 1217, **1215**
Gross, E. G., 1635, **1598**
Gross, E. M., 866, **1110**
Gross, J., 240, **464**; 262, **1200**
Gross, P., 1678, **1768**
Gross, P. R., 263, **640**
Grossberg, A. L., 264, **146**
Grossman, A. J., 1298, **1621**; 1397, **1622**; 1406, **1538**
Grossman, L., 867, **817**
Grossman, R. G., 265, **271**
Grubbs, R. C., 266, **101**
Gruber, C. M., Jr., 1333, **1464**; 1407, **1465**
Grumbach, L., 267, **490**
Grundfest, H., 335, **243**; 476, **377**
Gubler, C. J., 1801, **1887**
Guccione, I., 672, **802**
Guest, M. M., 451, **208**; 948, **118**
Guillebeau, J., 1729, **1738**
Guillemin, R., 268, **366**
Guilmain, J., 1691, **1899**; 1730, **1860**
Gundersen, K., 269, **318**
Guroff, G., 1133, **1139**
Gutensohn, M. O., 149, **553**
Gutman, A. B., 36, **218**; 270, **349**; 1247, **919**
Gutmann, H. R., 868, **94**
Guyton, A. C., 271, **425**
Guzman-Flores, C., 293, **533**
Gyenes, L., 542, **974**
György, P., 1112, **1204**

Habel, K., 1909, **1963**; 1925, **1941**
Habermann, R. T., 1731, **1764**
Habif, D. V., 847, **700**
Haddy, F. J., 272, **426**
Hafez, E. S. E., 667, **411**
Haff, R. F., 1926, **1938**
Hafkenschiel, J. H., 533, **383**
Haft, D. E., 1679, **1059**
Hageman, E., 873, **343**
Hagen, P., 1408, **170**
Hagerman, D. D., 1228, **1290**
Hahn, J. W., 273, **81**
Haist, R. E., 274, **536**
Halberg, F., 107, **644**
Hale, C. J., 340, **550**
Hale, D. B., 1699, **73**
Haley, K., 1643, **1745**
Haley, T. J., 1358, **1615**; 1409, **1676**; 1410, **1607**
Hall, F. G., 314, **230**
Hall, L. M., 869, **1298**
Hall, W. K., 1802, **1842**
Hallesy, D. W., 1411, **1677**
Halliday, S. L., 1218, **98**
Halpern, E., 1707, **1777**
Halsey, Y. D., 1738, **1154**
Halsted, J. A., 1875, **1841**
Halver, J. E., 1782, **1864**; 1803, **1836**; 1804, **1930**
Hamilton, H. B., 1036, **1228**
Hamilton, J. R., 274, **536**
Hamilton, L. H., 308, **764**
Hamilton, M. G., 1066, **1042**
Hammel, H. T., 275, **632**
Hammon, W. M., 1927, **1993**; 1933, **1991**; 1957, **1976**
Hampton, J. K., Jr., 276, **23**
Hamre, D., 1928, **2011**
Hamwi, G. J., 1649, **24**
Hanahan, D. J., 870, **1001**
Handler, A. H., 1680, **1747**
Handler, P., 832, **1010**
Handley, C., 1450, **1586**
Handley, C. A., 1591, **1585**
Handschumacher, R. E., 871, **96**
Hane, D. L., 1304, **1625**
Hankes, L. V., 872, **1175**; 890, **1174**
Hanna, C., 1412, **1606**
Hanna, L., 1937, **2017**
Hansbury, E., 989, **1072**
Hansen, A. E., 1884, **1852**
Hansen, R. G., 873, **843**
Hansl, N. R., 874, **824**
Harary, I., 875, **858**
Harbers, E., 884, **52**
Hardin, C. A., 1750, **1771**
Hardinge, M. G., 1413, **1483**
Hardy, J. D., 289, **722**; 587, **723**
Hare, A., 1870, **1903**
Hare, K., 277, **590**
Hare, R. S., 277, **590**
Harkness, W. D., 1414, **1605**
Harman, J. W., 1681, **1795**
Haroutunian, L. M., 333, **386**
Harper, L., 1805, **1912**
Harper, P. V., 278, **43**
Harrington, H., 876, **51**
Harris, A. S., 279, **760**; 280, **494**
Harris, J., 877, **931**
Harris, P. L., 1809, **1847**
Harris, P. N., 1545, **1396**
Harris, R. S., 1880, **1925**
Harris, S., **2030S**; 1929, **2008**
Harris, T. N., **2030S**; 1929, **2008**
Harrison, F. M., 407, **638**
Harrow, B., **991S**
Harshman, S., 1135, **820**
Hart, E R., 281, **376**; 1467, **1574**
Hart, H. E., 1116, **1129**
Hartline, H. K., 482, **528**
Hartman, F. W., 42, **575**; 1682, **1720**
Hartman, S. C., 878, **910**
Hartmann, R. C., 553, **152**
Hartnett, C., 775, **1357**
Hartroft, W. S., 1683, **1774**
Harvey, J. C., 282, **554**
Harvey, R. B., 284, **481**
Harvey, R. F., 283, **352**
Hash, J. H., 1806, **1095**
Hass, G , 114, **272**; 1640, **1702**; 1652, **1707**; 1741, **68**
Hassid, W. Z., 852, **925**
Hasselmeyer, E., 1871, **1861**
Hastings, A. B., **279S**; 691, **1063**
Hatefi, Y., 905, **1242**
Hauck, H. M., 1807, **1914**
Haugaard, N., 296, **1473**; 879, **904**
Hauge, J. G., 706, **1214**
Haugen, M. G., 295, **336**
Haurowits, F., 880, **810**; 1980, **2067**
Hausberger, B. C., 285, **200**
Hausberger, F. X., 285, **200**
Hauser, G., 928, **1317**
Haverback, B. J., 1415, **1638**
Hawk, E. A., 1887, **1892**
Hawkins, J. R., 1370, **1672**
Hawley, E. E., 1808, **1931**
Hawthorne, E. W., 286, **761**; 307, **562**; 659, **60**
Hayashi, O., 929, **1084**
Hayano, M., 723, **1158**
Hayden, R., 78, **685**
Hayes, H. B., 321, **699**
Hayes, W. J., Jr., 1363, **1407**
Haynes, F. W., 371, **207**
Haynes, R., C., Jr., 881, **1073**
Hays, H. W., 1286, **1582**; 1416, **1609**
Haywood, C., **400S**
Hazelton, L. W., 1612, **1612**
Hearn, W. R., 268, **366**
Heaton, R. W., 1394, **1485**
Hecht, L. I., 882, **1184**
Hechter, O., 380, **315**; 588, **1291**
Heck, W. W., 883, **1302**
Hegsted, D. M., 1677, **1788**; 1798, **1926**; 1879, **1904**; 1883, **1916**
Heidelberger, C., 884, **52**
Heidelberger, M., 885, **1957**
Heilbrunn, L. V., **276S**
Heimer, R., 886, **1202**
Heinrich, M., 1417, **1402**
Heinrich, R., 287, **123**
Heinz, R., 887, **614**
Heiselt, L. R., 1200, **1159**
Heisey, S. R., 1418, **1399**; 1559, **1400**
Heisler, C. R., 888, **1329**
Heisse, C. K., 1623, **1624**
Heller, J. H., 288, **666**
Hellman, L., 727, **1161**; 1114, **848**
Helmer, O. M., 889, **558**
Heming, A. E., 1337, **1536**; 1430, **1578**; 1479, **1534**
Hemingway, A., 557, **358**
Henderson, L. M., 872, **1175**; 890, **1174**
Henderson, R. B., 817, **1113**
Hendler, E., 289, **722**
Hendley, C. D., 1305, **MP**, p. 628; 1419, **1600**
Hendrickson, M. J., 1441, **MP**, p. **638**
Henley, M. R., 844, **405**
Henley, R. M., 1794, **1839**
Henneman, D. H., 1421, **1515**
Hennessy, A. V., 1907, **2014**; 1930, **2013**
Hennigar, G. R., 1457, **1470**
Henry, J. P., 290, **683**
Henschke, U. K., 1723, **166**
Heppel, L. A., 891, **1256**
Herbst, E. J., 1242, **867**
Herczeg, S. A., 1549, **1527**
Hernandez, T., 291, **752**; 769, **437**
Hernandez-Peon, R., 292, **763**; 293, **831**
Herndon, J. F., 1813, **1829**
Heroux, O., 294, **541**
Herr, E. B., Jr., 892, **823**
Herranen, A. M., 893, **1269**
Herrick, J. F., 295, **336**
Herring, A. S., 2001, **1990**
Herriott, R. M., 1923, **2059**
Herrmann, R. L., 894, **1115**
Herschberger, R., 1455, **1603**
Hershberger, L. G., 1422, **1620**
Hershey, S. G., 672, **802**; 1554, **1693**
Herting, D. C., 1809, **1847**
Hertzman, A. B., 125, **650**; 196, **725**
Herzog, E., 1716, **1772**
Hess, M. E., 296, **1473**
Hess, S. M., 1423, **1631**
Hester, C. L., 1659, **1769**
Hetzel, P. S., 352, **569**
Hiatt, E. P., 297, **345**
Hickey, M. D., 717, **1344**
Hicks, M. L., 1407, **1465**
Hien, L. T., 1424, **1480**
Hiestand, W. A., 446, **778**
Hift, H., 1196, **989**
Higginbotham, R. D., 298, **148**
Higgins, E. S., 895, **1883**
Higgins, J. A., 116, **606**
High, E. G., 1810, **1835**
Highman, B., 7, **511**; 1684, **1716**; 1721, **1717**
Hilgar, A. G., 1710, **1798**
Hill, C. H., 1811, **15**
Hill, H. E., 1377, **1505**
Hill, M. S., 589, **132**
Hill, R. G., 1297, **121**; 1425, **150**
Hill, R. J., 896, **902**; 947, **1318**
Hills, C. H., 1073, **922**
Hillyard, I. W., 1426, **1459**
Hilton, J. G., 1427, **1608**
Hilton, J. L., 897, **1368**
Himwich, H. E., 647, **269**
Himwich, W. A., 299, **374**
Hinds, H., 1106, **1203**
Hine, C. H., 1521, **1689**
Hines, H. M., 593, **1032**
Hiraki, G. Y., 1092, **447**
Hiratzka, T., 1866, **1879**
Hirs, C. H. W., **374S**
Hirschmann, H., 766, **1354**
Hitchings, G. H., 807, **936**
Hobart, J., 1115, **1377**
Hobby, G., 739, **933**
Hoch, F. L., 300, **835**; 2019, **1999**
Hoch-Ligeti, C., 1685, **1737**
Hock, R. J., 301, **544**
Hoffman, B. F., 302, **487**
Hofmann, K., 1003, **1235**
Hogan, A. G., 1847, **1822**
Hogans, A. F., 1625, **1038**
Hogben, C. A. M., 129, **443**; 1561, **1661**
Hogg, J. F., 898, **943**

Hokama, Y., 1543, 128
Hokin, L. E., 899, 1472
Holaday, D. A., 303, 686
Holburn, R. R., 98, 153
Holden, J. T., 900, 860
Holland, W. C., 1287, 1562; 1428, 1412
Hollander, F., 304, 615
Hollett, C., 305, 89
Holley, H., 1070, 1770
Hollinger, G. W., 609, 525
Hollinshead, A. C., 1429, 1552
Hollis, V. Jr., 220, 357
Holmann, S., 1216, 945
Holloway, R. J., 1317, 1650
Holman, R. L., 1676, 1744; 1735, 1
Holman, R. T., 1065, 1853
Holt, J. P., 306, 282
Holt, L. E., Jr., 1871, 1861
Holtkamp, D. E., 1337, 1535; 1430, 1578; 1479, 1534
Hong, S. S., 402, 702
Hook, A. E., 1993, 1953; 2016, 1951
Hoover, C. R., 901, 1791
Hope, J. M., 180, 649
Hopkins, E. L., 307, 562
Hoppe, J. O., 1392, 1525
Hopps, H. E., 1899, 1988
Horecker, B. L., 902, 947
Horowitz, H. B., 318, 459
Horowitz, N. H., 870 S
Horvath, S. M., 308, 764; 575, 677
Horwitt, M. K., 1812, 1813
Horwitz, B. S., 1431, 1570
Hosko, M. J., 1432, 1656
Hosoya, E., 1433, 1678
Houck, C. R., 157, 747; 309, 563
Houde, R. W., 1434, 1501; 1611, 1506
Housholder, D. E., 268, 356
Hove, E. L., 1813, 1829
Howard, E., 310, 316
Howard, J. D., 465, 302
Howe, C., 1931, 2043; 1972, 2016
Howe, J., 1777, 1862
Howell, G. L., 625, 796
Howes, D., 1985, 1970
Howland, J. W., 420, 138
Howton, D. R., 1023, 1293
Hoyt, R. E., 1674, 1752
Hrenoff, A. K., 1435, 1679
Hsia, S. L., 903, 852
Hsiung, G. D., 1932, 1972
Hsu, J. M., 1814, 1826
Huang, K. C., 1436, 1481
Hubbard, R., 904, 961
Huber, R. deV. 1302, 1657
Huckabee, W. E., 311, 579
Huebscher, R. G., 45, 635
Huennekens, F. M., 905, 1242; 1204, 1079
Huf, E. G., 312, 391
Huff, R. L., 193, 753
Huggins, R. A., 361, 571
Hughes, J. R., 188, 534; 313, 552; 387, 324; 388, 773
Hughes, L. B., 1699, 73
Hulcher, F. H., 1815, 908
Hull, W. E., 314, 230
Hundley, J. M., 1024, 1055
Hunter, D. H., 1893, 2052
Hunter, F. E., Jr., 906, 986
Hunter, F. R., 508, 785
Hunter, J., 739, 933
Huntsman, D. B., 1430, 1578
Hurd, M. S., 192, 576
Hurlbut, W. P., 315, 396
Hurley, L. A., 1686, 1704
Hurwitz, J., 907, 946
Hurwitz, L., 1414, 1605
Hussey, C. V., 908, 35
Hutcheon, D. E., 1564, 1484
Hutcheson, R. M., 1216, 945
Hutchings, B. L., 1169, 1247
Hutchison, D. J., 695, 1263; 909, 1262
Hutt, B. K., 308, 764
Hwang, Kao, 1437, 1640
Hyman, C., 457, 410

Iampietro, P. F., 88, 506; 316, 476
Ibsen, K., 910, 21
Ihrig, J., 1578, 1446
Imam, I. Z. E., 1933, 1991
Imboden, J., 1468, 1456
Inamine, E., 1191, 1307
Ingersoll, F., 686, 1271
Ingold, A. H., 539, 264
Inscoe, J. K., 1478, 1684
Intoccia, A., 317, 478
Iriye, T. T., 838, 1365
Irvine, E. S., 1832, 1934
Irvine, J. E., 1685, 1737
Irvine, K., 1685, 1737
Irvine, W., 735, 1193
Irwin, S., 1438, 1653
Isaacs, J. P., 1401, 1496
Isaacs, M. C., 318, 459
Isbell, H., 1377, 1505; 1439, 1680; 1400, 1661
Ishida, N., 1934, 2009
Ishii, K., 911, 915
Isselbacher, K. J., 684, 949
Ito, S., 1687, 1796
Ito, T., 1816, 1276
Itoh, S., 319, 440; 320, 765
Itskovitz, H., 879, 904
Ivy, A. C., 321, 699; 389, 2
Ivy, E. K., 321, 699
Izzo, A. J., 912, 1350

Jackson, D. P., 322, 155
Jackson, E. B., 1899, 1988; 1935, 2034
Jacob, M. I., 850, 1287
Jacobs, E. E., 913, 1011
Jacobs, F. A., 914, 1136
Jacobs, G. S., 260, 347
Jacobson, K. B., 915, 988
Jaenicke, L., 916, 1330
Jaffé, E. R., 992, 622
Jahnke, J. K., 1817, 1863
Jahrmärker, H., 885, 1957
Jailer, J. W., 323, 405
Jakoby, W. B., 917, 1223
James, T. W., 381, 1047
Jameson, E., 324, 126
Jandorf, B. J., 1253, 819
Jang, R., 987, 924
Jaques, D. A., 325, 561
Jaques, L. B., 421, 44
Jaques, W. E., 1688, 1779
Jardetzky, C. D., 918, 982
Jaroslow, B. N., 1936, 159
Jason, R. S., 307, 562
Jasper, R. L., 147, 450; 383, 543
Jawetz, E., 14225; 1937, 2017
Jeanloz, R. W., 919, 1310
Jeffay, H., 920, 809
Jeffries, H., 2024, 1996
Jelinek, B., 1119, 811
Jenden, D. J., 1604, 187
Jenkins, W. T., 921, 1030
Jennings, R. B., 1689, 1740
Jensen, H., 922, 41
Jensen, K. E., 1938, 2012
Jensen, L. S., 1818, 1897
Joardar, S. N. D., 326, 729
Jochim, K. E., 327, 654
Jodrey, L. H., 1441, MP, p. 628
Johnson, A. R., 328, 470
Johnson, B. C., 1778; 965, 1279; 1775, 1811
Johnson, C. A., 777, 1363
Johnson, D. H., 1487, 1547
Johnson, H. D., 329, 766
Johnson, J. A., 330, 641
Johnson, L. H., 1068, 1062
Johnson, R. B., 923, 1189
Johnson, R. E., 1691, 1899; 1692, 1797; 1730, 1800
Johnson, R. P., 115, 232; 331, 307
Johnson, S. A., 1151, 40
Johnson, W. J., 924, 97
Johnston, C. G., 332, 662
Johnston, F. A., 1819, 1922
Johnston, J. M., 863, 1308
Jolly, E. R., 1442, 1431
Jones, D. S., 463, 209
Jones, F. T., 724, 1274
Jones, J. E., 518, 1356
Jones, M., 1322, 171
Jones, M. E., 773, 1299
Jones, R. L., 925, 1195
Jones, R. S., 1656, 1726; 1690, 1725
Joralemon, J., 656, 420
Jordan, D. L., 628, 28
Jordan, W. S., Jr., 1939, 1939
Jude, J. R., 333, 386; 453, 433
Jukes, T. H., 1820, 1843
Juras, D. S., 1706, 1781

Kabat, E. A., 1931, 2043; 1966, 2042
Kabara, J. J., 1511, 108
Kagawa, C. M., 1443, 1619
Kahn, J. B., Jr., 1444, 1507; 1608, 1411
Kahn, R. L., 1940, 2027
Kalckar, H. M., 684, 949
Kalf, G. F., 1269, 1311
Kalfayan, B., 1941, 1963
Kalow, W., 1445, 175
Kandel, A., 1446, 1589
Kanter, G. S., 334, 721
Kao, C. Y., 302, 487; 335, 248
Kao, F. F., 336, 305; 1303, 1461
Kao, K.-Y. T., 337, 1201; 1507, 91
Kaplan, H. M., 338, 767
Kaplan, H. S., 1655, 1749
Kaplan, M. H., 1942, 2004
Kaplan, R., 1647, 1778
Kaplan, S. A., 339, 687
Kappell, B., 1343, 1524
Kapphahn, J. I., 991, 1311
Karasek, M. A., 926, 1020
Karler, A., 927, 1043
Karler, R., 609, 525
Karnofsky, D. A., 774, 95
Karnovsky, M. L., 928, 1317
Karpovich, P. V., 340, 550
Karush, F., 1960, 975
Karvinen, E., 389, 2
Kaser, M. M., 908, 35
Katagiri, M., 929, 1084

Katsh, S., 341, **768**
Katsuyama, D. M., 1098, **806**
Katz, J., 930, **1067**; 1097, **449**
Katz, L. N., JS, p. 628; 342, **769**; 578, **792**
Katzman, P. A., 1097, **1272**
Kaufman, B. D., 343, **694**
Kaunitz, H., 1691, **1899**; 1692, **1797**; 1730, **1806**
Kavaler, F., 344, **573**
Kay, C. M., 931, **971**
Kay, E. R. M., 345, **981**
Kay, J., 1399, **1705**
Kay, L., 905, **1242**
Kay, W. W., 2013, **1952**
Kazenko, A., 155, **746**
Kearney, D. B., 932, **1233**; 1011, **1234**
Kearns, C. W., 984, **966**
Keasling, H. H., 1635, **1598**
Keats, A. S., 1447, **1502**
Keech, B., 1051, **1017**
Keith, E. F., 1448, **1513**
Keitzer, W. F., 325, **561**
Keller, A. D., 346, **524**
Keller, D. M., 394, **290**
Keller, E. B., 986, **879**
Keller, P. J., 933, **895**
Kelley, L., 1821, **1913**; 1922, **131**
Kellogg, R. H., 347, **770**
Kelly, A. R., 1682, **1720**
Kelly, E. M., 1316, **133a**
Kelly, K. H., 1449, **626**
Kelly, L. S., 348, **20**
Kelly, M. G., 1530, **1627**
Kelso, A. F., 349, **304**
Kendall, F. E., 1991, **1782**
Kendrick, J. E., 350, **651**
Kennedy, E. P., 1246, **1003**
Kenney, F. T., 934, **987**
Kensler, C. S., 1598, **1544**
Kent, B., 1450, **1586**; 1591, **1585**
Kent, G., 1716, **1772**
Kent, J. F., 1943, **1980**
Keplinger, M. L., 1451, **1469**
Kern, M., 935, **825**
Kersting, D. J., 563, **672**
Kessler, R. H., 351, **343**
Keston, A. S., 936, **963**
Kety, S. S., 565, **372**
Keutmann, E. H., 912, **1350**
Kewitz, H., 937, **189**
Keyl, A. C., 1452, **1596**
Keys, A., 255. **500**; 428, **505a**; 558, **491**; 603, **505b**; 1762, **3**
Keys, J. R., 352, **569**
Kiang, N. Y. S., 353, **600**
Kien, G. A., 1453, **1487**
Kies, M. W., 938, **1724**
Kilbourne, E. D., 1944, **2010**
Killam, K. F., 1454, **1652**
Kim, S. H., 1940, **2027**
Kimeldorf, D. J., 441, **508**; 1299, **29**
Kimmel, H. B., 1145, **973**
Kimmel, J. R., 939, **1108**
Kimmelstiel, R., 1228, **1290**
Kimura, S. J., 1937, **2017**
Kinard, F. W., 354, **661**
Kinard, S., 1455, **1603**
King, C. G., 1122, **955**
King, C. T. G., 355, **715**
King, J. S., Jr., 801, **1273**; 1456, **1441**
King, J. T., 379, **394**
King, K. W., 1806, **1095**; 1815, **908**
King, T. E., 940, **1238**; 943, **907**
King, W. M., 1577, **1440**
Kinnory, D. S., 941, **837**
Kinosita, R., 1714, **133**
Kirshner, J., 1617, **1450**
Kirshner, N., 356, **655**
Kisliuk, R. L., 942, **1244**
Kissel, J. W., 1330, **1432**
Kitos, P. A., 943, **907**
Kitzinger, C., 45, **635**; 425, **636**
Kiyasu, J. Y., 357, **446**
Klegman, J. H., 20, **730**
Klein, G., 458, **237**
Klein, J. R., 944, **830**
Klein, P. D., 945, **1181**
Kleitman, N., 144, **418**
Kline, B. E., **182S**
Kline, D. L., 358, **154**
Klingenberg, M., 751, **1236**
Klinger, O. J., 522, **580**
Klingman, G. I., 1457, **1470**
Kniazuk, M., 1349, **1580**
Knight, H. B., 1692, **1797**
Knipp, E. A., 1976, **1979**
Knobil, E., 359, **520**
Knoefel, P. K., 1436, **1481**
Knox, W. E., 1071, **964**
Kobayashi, T., 644, **324**
Koch, A., 1458, **1539**; 1631, **1426**
Koch, A. L., 946, **1122**; 1736, **1254**
Kochakian, C. D., 608, **409**
Kocholaty, W., 861, **1366**
Kocsis, J. J., 1295, **1591**; 1610, **1438**
Kodama, J. K., 1459, **1681**
Koeppe, R. E., 896, **902**; 947, **1318**
Koffler, H., 1984, **1984**
Kohler, H., 848, **1104**
Kohn, R. R., 1945, **1965**
Koizumi, K., 592, **484**
Koler, J., 665, **354**
Kolff, W. J., 385, **80**
Kolmen, S. N., 948, **118**
Koltun, W. L., 820, **112**
Kominz, D. R., 360, **260**
Konigsberg, W. H., 1193, **1037**
Koniuszy, F. R., 1852, **1890**
Konnerth, A., 420, **138**
Kopeloff, L. M., 111, **741**
Kopeloff, N., 111, **741**
Koppanyi, T., 1372, **1568**; 1516, **1626**
Koppel, J. L., 949, **34**; 1642, **39**
Koppelman, R., 855, **22**
Koprowski, H., 1946, **2072a**
Korman, S , 1328, **1482**
Korn, E. D., 1062, **1196**
Kornberg, A., 950, **1185**
Kornetsky, C., 565, **372**; 1460, **1662**
Korngold, L., 1947, **1982**
Korol, B., 1461, **1410**
Korzenovsky, M., 951, **855**
Koshland, D. E., Jr., 892, **823**
Kouwenhoven, W. B., 424, **495**
Kozloff, L. M., 952, **1187**
Kraintz, L., 361, **571**
Kramer, E. R., 1334, **1637**
Kramer, S., 246, **759**
Krampitz, L. O., 953, **1227**
Krantz, J. C., Jr., 1321, **1599**; 1602, **1514**; 1623, **1624**
Krasna, A. I., 954, **959**
Kratz, P., 1543, **128**
Kratzer, F. H., 1822, **1859**
Kraus, S. D., 362, **340**
Krause, R. F., 955, **1834**
Kraybill, H. F., **184S**
Krayer, O., 1462, **1455**
Krebs, E. G., 956, **1092**
Kremen, D., 397, **321**
Kretchmer, N., 363, **453**
Kreuzer, F., 364, **353**
Krevans, J. R., 322, **155**
Krezanoski, J. Z., 805, **1151**
Krieger, H., 549, **591**
Krieger, H. P., 632, **535**
Krimsky, I., 845, **1008**
Krinsky, N. I., 365, **1348**
Krnjević, K., 366, **327**
Kroc, R. L., 367, **235**
Kropa, E. L., 1370, **1672**
Krueger, H., 368, **771**; 369, **645**
Krueger, R. C., 957, **956**
Krum, A. A., 609, **525**
Kruse, R., 1371, **1584**
Kubicek, W. G., 370, **565**
Kuby, S. A., 1050, **1026**
Kuck, J. F. R., Jr., 332, **662**
Kuhn, W. L., 1463, **1520**
Kuhns, W. J., 1948, **1961**
Kuida, H., 371, **207**
Kulus, M., 1527, **1458**
Kulwich, R., 1823, **1881**
Kumm, M. G., 149, **553**
Kun, E., 958, **1226**
Kuna, S., 1349, **1580**
Kundin, W. D., 1464, **1551**
Kunkel, A. M., 1626, **188**
Kunkel, H. G., 1237, **976**
Kunkel, H. O., 959, **547**
Kuntzman, R., 1465, **1630**
Kupsky, C. H., 2016, **1951**
Kuron, G., 1876, **9**
Kurtz, G. W., 1772, **1844**
Kurtz, L. H., 362, **340**
Kusama, T., 176, **750**
Kushner, D. S., 1716, **1772**
Kutnerian, K., 960, **1132**
Kuyper, A. C., 960, **1132**
Kwit, N., 1404, **1555**
Kwong, E., 1777, **1862**
Kyker, G. C., 961, **109**

La Du, B. N., 1277, **1170**
Lagerborg, D. L., 1979, **1995**
Lahr, T. N., 962, **1320**
Laird, A. K., 1693, **979**
Lajtha, L. G., 1082, **1182**
Laken, B., 480, **299**
Lalich, J. J., 1705, **1767**
Lambert, E. H., 141, **306**
Lambert, G. F., 1855, **1855**
Lambertsen, C. J., 123, **300**; 343, **694**; 1466, **1504**; 1619, **1503**
La Motte, L. C., 1905, **1994**
Lampen, J. O., 963, **939**
Lamport, H., 372, **728**
Lamson, B. G., 1648, **136**; 1694, **13**[illegible]
Lamson, E. T., 180, **649**
Lamy, F., 964, **42**
Landau, B. R., 373, **546**
Landers, R. M., Jr., 621, **393**
Landesman, E., 220, **357**
Landowne, M., 448, **229**
Landy, M., 1916, **2035**; 1949, **2037**; 2004, **2036**
Lane, M. D., 965, **1279**
Lane, W. B., 1339, **107**
Lang, J., 1092, **447**
Lang, S., 1977, **678**

Langdon, R. G., 1208, **898**
Langen, L., 981, **1106**
Langer, L., 966, **1258**
Langfitt, T. W., 281, **376**; 1467, **1574**
Langner, R. R., 374, **1135**
Lanphier, E. H., 375, **696**
Lansing, A. I., **278S**
Lapresle, C., 1181, **1958**
Larks, S. D., 376, **556**
Larsen, E. G., 967, **1178**
Larson, F. C., 1079, **1173**
Lasagna, L., 1468, **1466**
Laskowaki, M., 1081, **1052**
LaSorsa, A. M., 1098, **806**
Laszlo, D., 570, **110**; 1328, **1482**
Latterell, F. M., 1046, **930**
Lauderdale, V., 303, **686**
Laughton, R., 235, **757**; 1589, **1641**
Laurent, D., 342, **769**
Lauson, H. D., **993S**
Lavenda, N., 377, **772**
Lavik, P. S., 876, **51**
Lawton, R. W., 378, **432**
Layne, E. C., Jr., 968, **1148**
Lazzarini, R., 787, **1213**
Leak, J. C., 883, **1302**
Leake, C. D., 1370, **1672**
Leake, N. H., 1456, **1441**
Leary, D. E., 1359, **1573**
Leathem, J. H., 444, **412**
Leaver, F. W., 969, **1089**
Lebow, M., 186, **424**
LeBrie, S. J., 30, **517**
Leder, I. G., 970, **1369**
Ledford, E. S., 1742, **1748**
Lee, J. M., 1824, **1896**
Lee, K. H., 805, **1151**
Lee, K. S., 1583, **1511**
Lee, R. E., 339, **687**
Lee, Y., 971, **1025**
Lee, Y. C. P., 379, **394**
Leeper, L. C., 972, **1156**
Lees, M., 973, **997**
Leftwich, C. I., 216, **584**
Lehman, I. R., 950, **1185**
Lehninger, A. L., 765, **1015**
Lehotzky, H., 1400, **1418**
Lehr, D., 1469, **65**; 1470, **1682**; 1485, **64**
Leichsenring, J., 1769, **1909**; 1874, **1908**
Leifer, P., 1396, **1622**
Lemon, H. M., 1101, **55**
Leon, M. A., 1695, **2063**
Leone, C. A., 1950, **2024**
Leong, G. F., 1317, **1650**
Leoschke, W. L., 1825, **1858**
LePage, G. A., 1060, **985**
Lerner, A. M., 2011, **1945**
LeRoy, G. V., 1511, **108**
Leskowitz, S., 1951, **160**
Lesseler, M. A., 266, **101**
Lester, G., 380, **315**
...ster, R. L., 974, **1016**
...vin, J. Y., 328, **470**
Leuchtenberger, C., 1696, **1753**
Levedahl, B. H., 381, **1047**
Levenberg, B., 382, **914**
Leveque, P. E., 1471, **1413**
Leverett, S. D., Jr., 521, **576a**
Levine, L., 732, **1112**; 1952, **2023**
Levine, V. E., 975, **1370**
Levintow, L., 976, **1297**
Levitz, M., 977, **1267**
Levy, H. R., 978, **818**
Levy, J., 906, **986**
Levy, M., 979, **969**
Levy, M. N., 384, **434**
Lewbart, M. L., 980, **1355**
Lewin, R., 1116, **1129**
Lewis, C., 991, **1211**
Lewis, G. T., 981, **1106**
Lewis, J. H., 154, **151**
Lewis, L. A., 385, **80**
Lewis, L. J., 1992, **1950**
Lewis, M. S., 386, **259**
Lewis, N. M., 1472, **1425**
Lewis, W. J., 26, **461**
Lewycka, C., 784, **1066**
Li, K., 1953, **1986**
Lichtenstein, J., 864, **1117**
Lichtler, E. J., 221, **79**
Lichtman, H. C., 808, **1785**
Lieberman, I., 982, **1120**
Lieberman, M., 1915, **1940**
Lifson, N., 412, **197**
Light, A. E., 1826, **1894**
Lilienthal, J. L., Jr., 282, **554**
Lilly, E. M., 862, **1367**
Lilly, J. C., 387, **324**; 388, **773**
Lim, R. K. S., 1500, **1566**
Lin, T. M., 389, **2**
Lind, H. E., 1306, **1554**
Lindberg, O., 726, **1013**
Lindberg, R. B., 1953, **1986**
Lindeman, V. F., 390, **774**
Lindsey, A. W., 271, **425**
Liner, R., 842, **1240**
Ling, G., 391, **246**
Linkenheimer, W. H., 392, **624**
Linkswiler, H., 1769, **1909**; 1874, **1908**
Lionetti, F. J., 983, **1123**
Lipke, H., 984, **966**
Lipmann, F., 773, **1299**; 1105, **1022**
Lippincott, S. W., 1697, **139**
Liptak, R. A., 280, **494**
Littauer, U. Z., 985, **1258**
Little, J. M., 1473, **1628**
Littlefield, J. W., 986, **879**
Littlefield, S., 1333, **1464**
Liu, C., 1954, **1999**
Loeb, G. I., 1138, **970**
Loeser, C., 1724, **1046**
Loew, E. R., 1517, **1565**
Loewe, S., **1420S**
Loewus, F. A., 987, **924**
Logan, M. A., 1055, **896**
Logan, R. G., 20, **730**
LoGrippo, G. A., 1682, **1720**; 1955, **1973**
Lojkin, M. E., 1827, **1932**
London, I. M., 992, **622**
Long, N. J., 1875, **1841**
Longley, R. W., 988, **1061**
Longson, D., 323, **405**
Longwell, B. B., 989, **1072**
Loomis, T. A., 1474, **149**
Loomis, W. F., 990, **647**
Loosli, C. G., 1928, **2011**
Loosli, J. K., 1877, **1807**
Lopez-Mendoza, E., 292, **763**
Lorand, L., 393, **253**
Lord, G., 1513, **90**
Loring, J. M., 1228, **1290**
Losee, F. L., 1686, **1704**
Losner, S., 1743, **114**
Lotspeich, W. D., 394, **290**
Lotz, L. V., 862, **1367**
Loud, A. V., 395, **845**
Love, R., 1946
Love, R. A., 1666, **1735**
Loveless, M. H., 1956, **2041**
Lowe, C., 1698, **836**
Lowell, F. C., 1982, **1983**
Lowry, O. H., 991, **1211**
Lowy, B. A., 992, **622**
Lozaityte, I., 1012, **1198**
Lu, Go, 1400, **1418**; 1574, **1535**
Lucchina, G. G., 103, **662**
Luck, J. M., **990S**
Ludwig, E. H., 1957, **1976**
Ludwig, M. L., 1026, **1142**
Lukens, L. N., 993, **913**
Lum, G. S., 1475, **1550**
Luper, M., 914, **1136**
Lurie, M. B., 1958, **2053**
Lushbaugh, C. C., 1699, **73**
Lushbough, C. H., 1828, **1812**
Lutz, B. R., 51, M.P., p. 628; 52, **735**
Lutz, R. N., 1829, **1917**
Luyet, B. J., 223, **625**
Lyman, M. M., 1849, **61**
Lynen, F., 953, **1227**
Lynes, T. E., 1305, M P, p. 628; 1419, **1660**
Lynn, W. S., Jr., 994, **1352**
Lyon, J. B., Jr., 396, **462**

Maas, W. K., 995, **1216**
Maass, A. R., 1430, **1578**
MacCanon, D. M., 1417, **1402**
MacDonald, M. A., 369, **645**
MacGrath, W. B., 23, **387**
Machlin, L. J., 996, **1143**
Macht, D. I., 397, **321**; 1476, **1683**
Mackal, R. P., 1053, **1188**
Mackenzie, C. G., 997, **1734**
Mackenzie, J. B., 997, **1734**
Mackler, B., 810, **1235**
MacLean, L. D., 398, **676**
MacLeod, R. A., 998, **934**
MacLennan, J. D., 1931, **2043**
Macmillan, W. H., 399, **441**; 1580, **1563**
Madden, D., 1640, **1702**
Madden, R. J., 400, **707**
Maddock, S., 1700, **1705**
Magalini, S. I., 401, **116**
Magasanik, B., 1038, **1118**
Magee, D. F., 402, **702**
Magid, E. B., 321, **699**
Magladery, J. W., 604, **468**
Maher, F. T., 1701, **1762**
Mahler, H. R., 999, **816**
Mahoney, D. C., 1598, **1544**
Mahowald, T. A., 1000, **851**
Maire, F. W., 403, **267**
Major, C. W., 610, **457**
Makovsky, A., 1551, **1611**
Malamed, S., 404, **693**
Malament, S. 792, **236**
Maley, G. F. 1001, **1323**
Maling, H. M. 1346, **284**; 1477, **1414**; 1478, **1684**
Malvin, R. L., 405, **296**
Mandel, H. G. 1002, **1261**; 1478, **1684**
Mangay, A. S., 1830, **1933**
Mangel, M., 1769, **1909**
Mann, F. D., 1702, **38**
Mann, G. V. 1763, **8**; 1790, **10**; 1531, **6**
Manning, J. W., Jr., 276, **23**
Mansmann, H. C., Jr., 2023, **2049**
Mansor, L. F., 1337, **1536**; 1479, **1534**
Mansour, J. M., 1320, **1474**
Mansour, T. E., 1480, **1509**

Mantel, N., **1423S**
Manthei, R. W., 1314, **1462**; 1481, **1685**
Manuelidis, E. E., 1978, **2040**
Marco, G. J., 1003, **1285**
Marcus, S., 1959, **157**
Maren, T. H., 1402, **1540**; 1576, **1541**
Margolin, S., 1586, **1617**; 1607, **1499**
Margulies, M., 1004, **942**
Marinetti, G. V., 1005, **1000**; 1264, **999**
Mark, L. C., 1482, **1389**
Markowitz, J., 102, **523**
Markus, G., 1960, **975**
Marmorston, J., 1997, **449**
Maroney, S. P., Jr., 406, **167**
Marrazzi, A. S., 281, **376**; 1467, **1574**
Marsh, D. F., 1483, **1592**
Marsh, J. B., 1006, **1283**
Marsh, M. E., 1832, **1934**
Marshall, L. M., 1007, **1230**
Marshall, N. B., 1835, **1802**
Marshall, W. H., 188, **534**
Martel, A., 1732, **1732**
Martin, A. W., 407, **638**
Martin, C., 1469, **65**; 1470, **1682**; 1485, **64**
Martin, C. J., 665, **354**
Martin, Charles J., 1484, **1508**
Martin, F. B., 1089, **1007**
Martin, G. J., 705, **1790**
Martin, S. J., 44, **733**
Martin, W. R., 1355, **1571**; 1486, **1567**
Martin, William R., 1008, **1371**
Martin, W. S., 266, **101**
Martinez, W. H., 1039, **1033**
Marusich, W., 1833, **1877**
Marx, L. 831, **145**
Marx, W. 831, **145**
Masin, F., 1748, **1731**
Mason, B. T., 1961, **2073**
Mason, H. C., 1961, **2073**; 1962, **2074**
Mason, H. S., 1009, **1229**; 1200, **1159**
Mason, M., 1010, **1031**
Mason, R. B., 415, **238**
Mason, R. C., 1487, **1547**
Masoro, E. J., 194, **1292**; 408, **539**
Massey, V., 932, **1233**; 1011, **1234**
Masson, G. M. C., 409, **566**; 1354, **1583**
Masuda, M., 410, **407**
Mathews, M. B., 1012, **1198**
Matschiner, J. T., 903, **852**
Mattson, F. H., 1760, **1836**; 1834, **1296**
Maurer, P. H., 1963, **2022**; 2026, **2065**
Maxwell, H. R., 1918, **2058**
Maxwell, R. A., 1488, **1526**; 1522, **1658**
Maxwell, R. E., 1489, **1406**
May, K. J., 2028, **1943**
Mayer, J., 670, **47**; 1835, **1802**
Mayer, M. M., 1964, **1974**
Mazurkiewicz, I., 809, **1472**
Mazzocco, T. R., 623, **795**
McAdams, A. J., 1688, **1779**
McAllister, J. G., III, 1746, **113**
McArdle, A. H., 1362, **1618**
McArthur, J. W. 686, **1271**
McCallum, G. L., 1965, **2070**
McCandless, E. L., 669, **57**
McCann, M. B., 1878, **1918**
McCann, S. M., 12, **M. P.**, p. 628
McCarthy, M.D., 411, **671**
McCarty, B. 910, **21**
McCay, P., 1013, **1277**
McClendon, J. F., 205, **460**; 1014, **1372**; 1836, **1915**
McClintock, R., 412, **197**
McColl, J. D., 924, **97**
McCollum, E. B., 1814, **1826**
McConahey, W. M., 454, **779**
McConn, R. G., 1341, **1604**
McConnell, K. P., 1015, **1373**
McCormick, W. G., 1409, **1676**; 1410, **1607**
McCoy, T. A., 1016, **18**
McCulloch, W. S., 328, **470**
McCullough, W. G., 1664, **1289**
McCutcheon, R. S., 1490, **1564**
McDaniel, E. G., 1024, **1055**
McDonald, H. J., 715, **1361**
McDonald, R. K., 413, **518**
McDuffie, F. C., 1966, **2042**
McElroy, W. D., 1017, **960**
McGaughey, C., 817, **1113**
McGill, H. C., Jr., 1676, **1744**; 1735, **1**
McGinnis, J., 1818, **1897**
McIlreath, F., 264, **146**
McIntyre, A. R., 1491, **1519**
McIsaac, R. J., 1492, **1646**
McKee, R. W., 910, **21**
McKenna, J. M., 673, **673**; 2008, **2005**
McKennis, H., Jr., 1493, **1390**
McKey, B. V., 1870, **1903**
McLain, P. L., 1494, **1686**
McLaughlin, M., 478, **231**
McLean, I. W., Jr., 1967, **1948**; 2013, **1952**; 2016, **1951**
McLean, J. R., 1018, **881**
McLellan, W. L., 983, **1123**
McManus, I. R., 1019, **1248**
McMillan, A., 1155, **1171**
McMillan, M., 1132, **1919**; 1870, **1903**
McMurray, W. C., 1020, **1004**
McNamara, H., 363, **453**
McNerney, J. M., 1678, **1768**
McOsker, D. E., 1021, **168**
McQuillen, M. P., 656, **420**
McRorie, R. A., 1022, **1246**
McVaugh, R. B., 325, **561**
McVickar, D. L., 1968, **2068**
Mead, J., 414, **228**
Mead, J. F., **179S**; 1023, **1293**
Meath, J. A., 826, **996**
Meckelnburg, K. L. 1590, **1429**
Megirian, R., 1495, **1500**
Mehl, J. W., 1183, **1251**
Mehler, A. H., 1024, **1055**
Meier, R. M., 288, **666**
Meisel, E., 1745, **1761**
Meister, A., 976, **1297**; 1088, **1301**
Melampy, R. M., 415, **238**
Melchior, J. B., 1025, **1090**
Melchior, N. C., 1025, **1090**
Mellors, R. C., 1703, **1757**; 1715, **1756**
Melnick, I., 382, **914**
Melnick, J. L., 1895, **1954**; 1932, **1972**; 1985, **1970**
Meltzer, H. L., 416, **1343**
Melville, D. B., 1026, **1142**
Melville, G. S., Jr., 1663, **1793**
Melville, K. I., 1461, **1410**
Mendicino, J., 1027, **1024**
Meng, H. C., 158, **663**; 305, **89**; 553, **152**
Menkin, V., 417, **587**
Meriwether, B. P., 459, **1150**
Merrick, A. W., 418, **775**
Merrifield, R. B., 1028, **1107**
Mertz, E. T. 1029, **119**; 1768, **1860**; 1777, **1862**; 1782, **1864**
Mertz, W., 1837, **1878**
Merwin, R. M., 419, **165**
Metta, V. C., **177S**
Meyer, D. K., 418, **775**
Meyer, E. D., **836**, **1359**
Meyer, F., 1083, **1376**
Meyer, H. M., Jr., 1969, **1975**
Meyer, J. S., 1683, **1774**
Meyer, K., 886, **1202**
Meyers, F. H. 1581, **1391**
Meyers, R. E., 436, **777**
Meyeserian, M., 1942, **2004**
Michaelson, S. M., 420, **138**
Michel, H. O., 1030, **821**
Mickelsen, O., 1887, **1892**
Middo, R. T., 463, **209**
Mielke, J. E., 1705, **1767**
Mihajlov, V., 177, **751**
Mika, E. S., 1620, **1613**
Milch, L. J., 1538, **1428**
Milhorat, A. T., 1882, **1876**
Millar, G. J., 421, **44**
Miller, A., 1031, **1332**
Miller, A. T., Jr., 422, **465**
Miller, B. F. 827, **444**
Miller, B. J., 1927, **1993**
Miller, C. P., 1712, **1711**
Miller, H. I., 573, **86**
Miller, L. L., 740, **886**
Miller, L. T., 1913, **2071**
Miller, M., 132, **196**
Miller, O. N., 1223, **1920**; 1799, **1814**
Miller, R. F., 1838, **1882**
Miller, S. A., 1761, **1905**
Miller, S. L., 1032, **1036**
Millican, R. C., 1496, **1595**
Millman, N., 423, **239**
Mills, J. N., 1167, **859**
Mills, R. C., 1232, **1237**
Milne, W. L., 1339, **107**; 1704, **30**
Milnor, W. R., 424, **495**
Milora, R., 1469, **65**; 1470, **1682**
Minard, D., **45**, **635**; 425, **636**
Minatoya, H., 1498, **1594**
Minthorn, M. L., 947, **1318**
Minton, M. F., 113, **505**; 671, **504**
Minz, B., 1497, **1687**
Misko, J. C., 1523, **1690**
Mistry, S. P., 1033, **918**
Mitchell, S. Q., 1499, **1417**
Mitz, M. A. 1970, **1340**
Miya, T. S., 1345, **1451**
Miyake, A., 1083, **1376**
Moat, A. G., 1971, **917**
Moffit, R. L., 1500, **1566**
Mogab, J. J., 1988, **2056**
Moldave, K., 426, **49**
Moll, H. C., 427, **607**
Monagle, J. E., 428, **505a**
Mone, P. E., 1862, **1805**
Monier, J. S., 1626, **188**
Monkhouse, F. C., 429, **144**
Monroe, C., 1640, **1702**
Moor, J. R., 1880, **1925**
Moore, D. H., 1972, **2016**; 1986, **2015**
Moore, G. M., 1317, **1650**
Moore, J. C., 430, **226**
Moore, R., 1501, **1523**
Moore, R. O., 1095, **1077**
Moore, S., **874S**; 1173, **1339**
Moos, C., 393, **263**
Morales, G., 1502, **1490**; 1514, **1467**; 1637, **1610**
Morales, M. F., 63, **261**; 431, **957**
Morales, S., 1883, **1916**
Moran, N. C., 1477, **1414**; 1503, **1452**; 1519, **1453**
Morehouse, M. G., 1034, **142**

Morello, A., 1502, **1490**
Morgan, A. F., 1839, **1935**
Morgan, C., 1972, **2016**; 1986, **2015**
Morgan, E. R., 963, **939**
Morgan, J. F. 1035, **805**
Morgan, P., 1750, **1771**
Morgan, W. L., 59, **210**; 432, **211**
Mori, H. D., 1706, **1781**
Morin, F., 433, **776**
Morphis, B. B., 1552, **1600**
Morrill, G. A. 789, **1475**
Morrison, A. B., 1840, **1886**
Morrison, M., 764, **813**; 1036, **1228**
Morrow, G., 28, **718**
Morton, H. J. 1035, **805**
Morton, J. I., 788, **1194**
Morton, J. L., 1649, **24**
Mosbach, E. H., 1323, **954**; 1647, **1778**; 1707, **1777**
Moskowitz, M., 1984, **1984**
Moss, W. G., 495, **577**
Motley, H. L., 216, **684**
Mounter, L. A., 1037, **965**
Moy, R. H., 1753, **12**
Moyed, H. S., 1038, **1118**
Moyer, J. H., 1347, **1581**; 1450, **1586**
Mosden, P., 1517, **1565**
Mozersky, S., 920, **809**
Mraz, F. R., 1841, **1810**; 1857, **1880**
Mueller, G. C., 893, **1269**; 1638, **1648**
Muirhead, E. E., 1708, **1797a**
Mukherjee, S., 1776, **1851**
Muldrey, J. E., 1039, **1033**
Mulford, D. J., 1040, **1374**
Müller, O. H., 434, **889**; 639, **342**
Munch-Petersen, A., 697, **941**
Murayama, M., 1041, **812**
Murdoch, M. E., 1316, **1333a**
Murphy, S. D., 1504, **1688**
Murray, I. M., 1042, **977**
Murray, T. K., 1842, **1840**
Musacchia, X. J., 435, **479**
Mushett, C. W., 1709, **67**; 1876, **9**
Myrvik, Q. N., 1973, **2054**

Nadel, E. M., 743, **1071**; 1710, **1798**; 1711, **1727**
Nadell, J., 171, **708**
Nagasawa, H. T., 868, **94**
Nahas, G. G., 437, **578**
Najjar, V. A., 1162, **1094**
Nakada, H. I., 438, **901**
Nanninga, L., 1043, **842**
Nardone, R. M., 439, **589**
Nash, J. B., 1505, **1385**; 1636, **1549**
Nason, A., 1174, **856**
Nasset, E. S., 1843, **1907**
Nastuk, W. L., 440, **191**
Nathan, P., 14, **325**
Nations, F. N., 1624, **1701**
Natvig, R., 1044, **1100**
Neal, A. L., 1107, **1884**
Neff, J. C., 1974, **2021**
Neidle, A., 1126, **878**
Neilands, J. B., 1045, **1312**
Nelson, A. A., 1315, **1404**; 1373, **1405**; 1757, **1783**
Nelson, C. T., 175, **317**
Nelson, E., 303, **686**
Nelson, E. L., 1712, **1711**; 2027, **2038**
Nelson, L., 1737, **1776**
Nelson, M. M., 1787, **1817**; 1844, **1827**
Nelson, T. L., 1521, **1689**
Nelson, T. S., 1867, **1871**
Neufeld, H. A., 1046, **930**
Neuhaus, O. W., 1047, **804**
Neuman, R. E., 1016, **18**
Neuman, W. F., 1195, **1133**
Neurath, H., 933, **895**
Newsom, B. D., 441, **508**
Newton, G., 713, **1078**
Neyland, M., 204, **527**
Nichol, C. A., 1275, **1333**
Nicholas, A., 1937, **2017**
Nicholas, H. J., 1048, **844**
Nichols, C. W., Jr., 1856, **4**
Nichols, G., Jr., 1845, **199**
Nichols, J., 442, **595**
Nichols, N., 1845, **199**
Nichols, N. H., **403S**
Nickerson, M., 1506, **1602**; 1570, **1577**; 1634, **1597**
Niden, A. H., 16, **351**
Nielsen, F. J., 2022, **849**
Ninos, G. S., 1958, **2053**
Nisonoff, A., 1049, **1959**
Nisselbaum, J. S., 716, **1346**
Nitowsky, H. M., 1846, **1874**
Noble, F. W., 443, **286**
Noble, N. L., 337, **1201**; 1507, **91**
Noble, R. L., 97, **5**
Nocenti, M. R., 444, **412**
Noda, L., 1050, **1026**
Noe, E., 287, **123**
Noell, W. K., 445, **690**
Nolan, J. M., 1902, **2055**
Nold, M. M., 1881, **1865**
Norcia, L. N., 839, **66**
Nord, F. F., 1210, **887**
Norman, D., 446, **778**
Norman, P. S., 1975, **120**
Normann, N., 447, **688**
Norris, A. H., 448, **229**
Norris, L. C., 1840, **1886**
North, W. C., 1452, **1536**
Northup, D. W., 585, **705**
Norton, P., 1871, **1861**
Norton, S., 1508, **1655**
Nossal, P. M., 1051, **1017**
Nothman, M. M., 1509, **19**
Novack, P., 371, **207**
Novelli, G. D., 785, **875**
Novikoff, A. B., 1052, **983**
Nowinski, W. W., 449, **716**
Noyes, W. F., 1713, **1751**
Nungesser, W. C., 450, **430**
Nussbaum, A., 588, **1291**
Nyc, J. F. 1069, **1325**
Nye, S. W., 227, **755a**
Nyman, M. A., 273, **81**

O'Brien, L. J., 451, **208**
Ochoa, S., **873S**; 734, **1255**; 891, **1256**
O'Dell, B. L., 1847, **1822**
Odland, L. M., 1848, **1923**
O'Donnell, J. F., 1053, **1188**
Oester, Y. T., 1510, **63**; 1550, **62**
Oesterling, M. J., 1054, **1157**
Ogburn, C. A., 1929, **2006**
Ogle, J. D., 1055, **896**
O'Halloran, P. S., 75, **224**
Ohlson, M. A., 1805, **1912**; 1821, **1913**
Ohno, S., 1714, **133**
Oikemus, A. H., 1512, **1435**
Okey, R., 1849, **61**
Okita, G. T., 1511, **108**
Okuda, K., 1814, **1826**; 1850, **1823**
Olds, J., 1454, **1652**
O'Leary, J. F., 1512, **1435**
Oleksyshyn, N. L., 187, **860**
Oleson, J. J., 1218, **98**
Olewine, D. A., 467, **780**
Olin, C. I., 504, **784**
Olitsky, P. K., 1824, **1896**
Oliver, R. W., 1802, **1842**
Olsen, N. S., 1057, **998**
Olson, J. A., 1056, **847**
Olson, M. E., 1085, **883**
Olson, R. E., 470, **205**; 1188, **1103**; 1888, **1821**
Olwin, J. H., 949, **34**; 1042, **39**
Omachi, A., 233, **618**
O'Malley, W. E., 1321, **1599**
Oncley, J. L., 365, **1343**; 853, **84**
Oneson, I., 1513, **90**
Ono, J., 1754, **1723**
Onofrey, E., 998, **934**
Onoprienko, I., 1009, **1229**
Oppenheimer, F., 2013, **1952**
Orbison, J. L., 1724, **1046**
Orkin, L. R., 1514, **1467**; 1637, **1610**
Orloff, J., 452, **293**
Ormsby, A. A., 596, **222**
Ortega, L. G., 1703, **1757**; 1715, **1756**
Orten, A. U., 1851, **1856**
Orten, J. M., 967, **1178**
Orti, E., 480, **299**
Ortiz, L. O., 1767, **1850**
Ortiz, P. J., 891, **1256**
Orto, L. A., 680, **1284**
Orvis, A. L., 116, **606**; 427, **607**
Osler, A. G., 1976, **1979**
Osserman, K. E., 440, **191**
Ostashever, A. S., 139, **1442**
Oster, R. H., 89, **371**
Ostfeld, A. M., 1515, **1434**
Otero, A. G., 1943, **1980**
Otis, A. B., 453, **433**
Ott, M. G., 1172, **92**
Ott, W. H., 1876, **9**
Outland, C. E., 1040, **1374**; 1785, **1825**
Overman, MR. R., 3, **720**; 27, **731**
Owen, C. A., Jr., 454, **779**; 1654, **1786**
Owen, S. G., 343, **694**
Owens, O. V. H., 455, **398**

Pace, N., 347, **770**; 609, **525**
Paganelli, C. V., 456, **617**
Page, A. C., 1786, **1889**
Page, A. C., Jr., 1852, **1890**
Page, E., 706, **1214**
Page, I. H., 385, **80**
Paldino, R. L., 457, **410**
Palleroni, N. J., 794, **950**
Pallotta, A. J., 1516, **1636**
Panagos, S. S., 194, **1292**
Panos, T. C., 458, **237**
Papacostas, C. A., 1517, **1565**
Papadopoulos, N. M., 1853, **1804**
Pappenheimer, A. M. Jr., 2018, **2028**; 2033, **2048**
Papper, E. M., 1482, **1389**
Pareira, M. D. 1977, **678**
Parfentjev, I. A., 1978, **2040**
Park, C. R., 459, **1150**; 1058, **1062**
Park, J. H., 459, **1150**

Parker, R. E., 1594, **1542**
Parlow, A. F., 30, **517**
Parsons, H. T., 1132, **1919**
Parsons, J., 1270, **115**
Partin, H. C., 1507, **91**
Partridge, M. H., 449, **716**
Paschkis, K. E., 94, **1260**; 460, **408**
Pasik, P., 461, **417**
Pasik, T., 461, **417**
Passey, R. F., 1059, **909**
Passonneau, J. V., 778, **1241**
Patek, A. J., 1904, **1910**
Paterson, A. R. P., 1060, **985**
Patrick, H., 1841, **1810**; 1857, **1880**
Patt, H. M., 589, **132**
Patterson, E. K., 1061, **894**
Patterson, J. L., Jr., 198, **273**
Patton, F., 1070, **1770**
Paulson, S. F., 668, **701**
Payza, A. N., 1062, **1196**
Pazur, J. H., 1063, **952**
Pearl, D. C., Jr., 462, **262**
Pearl, W., 263, **640**
Pearson, H. E., 1979, **1995**
Pearson, N. S., 1880, **1925**
Pearson, P. B., 700, **1021**; 1823, **1881**
Pearson, W. N., 1830, **1933**; 1854, **1816**
Peck, H. D., Jr., 1064, **958**
Pederson, D. J., 688, **1833**
Peek, N. F. 1856, **4**
Peifer, J. J., 1065, **1853**
Peiss, C. N., 349, **304**; 463, **209**
Penek, M. J., 1574, **1535**
Penn, H. S., 1543, **128**
Penn, N., 1980, **2067**
Pennell, R. B., 686, **1271**
Penniall, R., 1981, **1147**
Penrod, K. E., 464, **695**
Perdue, H. S., 1855, **1855**
Pérez, C., 1868, **1921**
Perkins, J. F., Jr., 465, **302**
Perl, E. R., 466, **473**
Perlin, S., 565, **372**
Perlmutt, J. H., 467, **780**
Perot, P. L., Jr., 468, **692**
Petermann, M. L., 1066, **1042**
Peters, J. H. 868, **94**
Peters, T., 1982, **1983**
Petersen, D. F., 1518, **74**
Petersen, L. H., 469, **429**
Peterson, D. W., 1856, **4**
Peterson, R. D., 1067, **1789**
Phillips, G. E., 792, **236**
Piantadosi, C., 1068, **1375**
Piatnek, D. A., 470, **205**
Pick, R., 578, **792**
Pierce, J. G. 1069, **1325**
Pierce, W. C., 747, **1109**
Pierce, Z. H., 1829, **1917**
Pietroluongo, A. L., 400, **707**
Pies, K. A., 1519, **1040**
Pigman, W., 1070, **1770**
Pike, R. L., 1863, **1830**
Pillemer, L., 1913, **2071**; 2025, **2069**
Pinajian, J. J., 1857, **1880**
Pincus, G., 667, **411**; 722, **1070**
Piovella, C., 1897, **MP**, p. 628
Pipkin, G. E., 1885, **1895**
Pirrung, J., 772, **1172**
Pitt, B. M., 1071, **964**
Pittinger, C. B., 1520, **1471**
Pitts, R. F., 351, **343**
Pitts, W., 328, **470**
Plaa, G. L., 1521, **1539**
Platner, W. S., 471, **781**
Platt, D., 1070, **1770**
Plescia, O. J., 440, **191**; 1983, **2066**
Pless, H. H., 1302, **1657**
Plotnikoff, N. P., 1283, **1561**
Plummer, A. J., 1352, **1436**; 1488, **1526**; 1522, **1658**; 1571, **1529**; 1603, **1576**
Podber, E., 1061, **894**
Pogrund, R. S., 472, **653**
Polglase, W. J., 473, **1209**
Poling, C. E., 1862, **1805**
Polis, B. D., 1072, **1014**
Pollack, R. L., 1073, **922**
Pollard, C. J., 1767, **1850**
Polley, E., 1614, **1699**
Pomerantz, S. H., 1074, **1088**
Poppell, J. W., 499, **496**
Popper, H., 1716, **1772**
Porrata-Doria, E. I., 1779, **1927**
Porter, G. A., 1523, **1690**
Porter, J. C., 474, **365**
Porter, J. W. 1234, **1286**
Porter, R., 540, **344**
Porter, T., 1828, **1812**
Portman, O. W., 1858, **7**
Post, R. L., 475, **445**
Postel, S., 1722, **1730**
Potter, J. L., 1075, **838**
Potter, V. R., 882, **1184**
Powell, J. R., 1810, **1835**
Pozza, G., 203, **755**
Pratt, J. H., 1509, **19**
Pratt, R. L., 660, **633**
Prediger, F. R., 1349, **1580**
Pressman, B. C., 1076, **1012**
Pressman, D., 1049, **1959**; 1896, **2001**
Preston, J. B., 1524, **1572**
Price, C. A., 1077, **1338**
Price, H. L., 1525, **1557**
Price, D. B., 1078, **885**
Price, J. M., 733, **1176**; 1079, **1173**
Price, N. O., 1838, **1882**
Pricer, W. E., Jr., 1086, **864**
Prioli, N. A., 1526, **1601**
Pritchard, E. T., 1080, **1005**
Privat de Garilhe, M., 1081, **1052**
Procita, L., 1426, **1459**; 1527, **1458**
Proctor, C. D., 1528, **1392**; 1533, **1518**; 1534, **1517**
Prosser, C. L., **401S**
Proutt, L. M., 89, **371**
Prusoff, W. H., 1082, **1182**
Pruzansky, J., 1859, **1819**
Pryor, J. W., 2024, **1996**
Pudelkewicz, C., 1860, **1818**
Purdy, F. A., 1622, **1709**
Purpura, D. P., 476, **377**
Putnam, F. W., 1083, **1376**

Quackenbush, G. G., 1821, **1913**
Quick, A. J., 1084, **147**
Quilliam, T. A., 477, **422**
Quinn, G. P., 1503, **1452**; 1529, **1453**
Quiros, A., 1883, **1916**

Raber, G., 243, **285**
Rabiner, S. F., 808, **1785**
Rabinovitz, M., 1085, **833**
Rabinowitz, J. C., 1086, **864**
Rachele, J. R., 1087, **1250**
Racker, E., 845, **1008**
Radding, C. M., 1235, **962**
Radford, E. P., Jr., 478, **231**
Radhakrishnan, A. N. 1088, **1301**
Radin, N. S., 124, **217**; 1089, **1007**
Rafter, G. W., 1090, **833**
Rafter, J. 961, **109**
Rahn, H., 479. **583**
Rajou, R. A., 1668, **1759**
Rall, D. P., 1530, **1627**
Rall, T., 1091, **1155**
Ralli, E. P., 480, **299**
RamaRao, P. B., 1033, **918**
Ramey, E. R., 55, **458**; 247, **361**
Rampone, A. J., 196, **725**
Ramsey, D. S., 1924, **1981**
Rand, R., 1698, **836**
Randall, C. C., 1651, **1722**; 1717, **1721**
Randall, H. T., 499, **496**; 620, **497**
Randall, J. E., 481, **430**; 1555, **1694**
Randall, L. O., 1343, **1524**; 1567, **1623**
Randall, W. C., 463, **209**; 506, **486**
Rapp, H. J., 1964, **1974**
Rappaport, A. M., 1092, **447**
Rappoport, D. A., 1531, **76**
Rapport, D., 95, **111**; 194, **1292**
Rapport, M. M., 1093, **1960**; 1713, **1751**
Ratliff, F., 482, **528**
Rau, G. C., 33, **732**; 1532, **1614**
Rauschkolb, E. W., 191, **362**
Raut, C., 1094, **1207**
Rawnsley, H. M., 752, **1210**
Ray, B. R., 984, **966**
Ray, F. E., 1718, **613**
Read, K., 1984, **1984**
Read, M. S., **184S**; 1095, **1077**
Reazin, G. H., 1096, **906**
Rebar, B. T., 1528, **1392**; 1533, **1518**; 1534, **1517**
Rebar, J. Jr., 1528, **1392**; 1533, **1518**; 1534, **1517**
Rebuck, J. W., 1719, **1708**
Reckers, L., 1097, **1272**
Recknagel, R. O., 483, **1167**
Reeb, B. B., 124, **217**
Reed, E. A., 484, **227**
Register, U. D., 1098, **806**
Rehm, W. S., 148, **610**
Reichard, S. M., 485, **665**
Reid, B. L., 1099, **1885**
Reid, E., 529, **788**
Reid, M. E., 1861, **1906**
Reid, S. C., 1427, **1608**
Reif, A. E., 989, **1072**
Reiner, B., 486, **1130**
Reiner, J. M., 486, **1130**
Reinhardt, W. O., 487, 782
Reinhold, J. G., 752, **1210**
Reiser, R., 1100, **1294**
Reissig, M., 1985, **1970**
Relman, A. S., 488, **345**; 540, **344**
Remp, D. G., 1924, **1981**
Rendell-Baker, L., 1535, **1531**
Rennick, B. R., 1536, **1590**
Renold, A. E., 217, **583**
Renzi, A. A., 1538, **1428**
Repplinger, E. F., 1537, **1691**
Reynolds, M. D. 1101, **55**
Reynolds, M. S., 1769, **1909**; 1774, **1815**
Reynolds, V. H., 1216, **945**
Rhode, R., 172, **630**
Rhodes, D. N., 870, **1001**
Rhodes, M. B , 813, **940**
Ricci, G., 489, **603**

Rice, E. E., 1862, **1805**
Rich, C. 1102, **1309**
Rich, K., 1276, **1183**
Rich, M., 236, **609**; 1589, **1641**
Richards, A. B., 1387, **1523**
Richards, G. E., 1146, **1050**
Richards, J. B., 490, **367**
Richards, R. K., 1539, **1463**; 1597, **1537**
Richardson, D. W., 198, **273**
Richardson, E. M., 611, **592**
Richardson, J. A., 1540, **1558**
Richardson, L. R., **1815**
Richert, D. A., 895, **1893**; 1144, **1179**
Richter, M., 542, **974**
Rieck, A. F., 491, **140**
Rieder, S. V., 1103, **1097**
Rieders, F., 1541, **1401**; 1542, **1692**
Riedesel, M. L., 492, **545**
Riegel, C., 533, **383**
Rieker, R. A., 1178, **1888**
Rieser, P., 493, **102**
Rigdon, R. H., 1789, **1872**
Riggs, T. R., 1104, **1137**
Rightsel, W. A., 1967, **1948**
Riley, R. F., 1543, **128**
Riley, V. T., 494, **616**
Rinaldi, F., 1898, **2051**
Rinehart, J. F., 865, **1932**; 1832, **1934**
Ring, G. C., 495, **577**
Ringer, R. K., 591, **550**; 642, **798**
Ringler, I., 496, **241**
Rink, R. A., 1397, **1442**
Rittenberg, D., 954, **959**
Ritterband, A. B., 36, **218**
Robbins, J., 497, **243**
Robbins, M. L., 1464, **1551**
Robbins, P. W., 1105, **1022**
Roberts, E., 900, **860**
Roberts, J. C., **2031S**
Roberts, J. T., 498, **382**
Roberts, K. E., 499, **496**; 620, **497**
Roberts, N. R., 991, **1211**
Roberts, S., 561, **364**
Roberts, W. J., Jr., 354, **661**
Robertson, H. E., 1919, **1969**
Robertson, J. D., 407, **638**
Robertson, J. S., 500, **111a**
Robertson, W. V., 1106, **1203**
Robinson, C. W. 839, **66**
Robinson, H. J., 1487, **1547**
Robinson, M. J., 1375, **1553**
Robinson, P. F., 501, **714**
Robinson, R. J., 1499, **1417**
Robinson, R. U., 1437, **1640**
Robinson, T., 1107, **1534**
Robinson, W. G., 1108, **1083**
Roboz, E., 938, **1724**
Rockstein, M., 502, **783**
Rodbard, S., 503, **287**; 504, **784**
Roderuck, C., 1860, **1818**
Rodkey, F. L., 1109, **1035**
Rodnan, G. P., 505, **639**
Rodwell, V. W., 1217, **1215**
Roe, J. H., 988, **1061**; 1853, **1804**
Roeder, K. D., 612, **598**
Rogers, D., 1110, **938**
Rogers, E. B., 11, **567**
Rogers, N. G., 1969, **1975**
Rohrbaugh, L. M., 1213, **944**
Rohse, W. G., 506, **486**
Rokaw, S. N., 24, **502**
Roley, E. L., 75, **224**
Rolfe, D. T., 87, **1824**
Roma, M. 803, **555**
Rondell, P. A., 325, **561**
Rongone, E. L., 1111, **1168**
Roos, T. B., 658, **629**
Root, M. A., 1544, **1645**
Rope, E. Z., 1967, **1948**
Rose, B., 542, **974**
Rose, C. L., 1545, **1396**
Rose, C. S., 1112, **1204**
Rose, H. M., 1972, **2016**; 1986, **2015**
Tose, I. A., 1103, **1097**
Rose, N. R., 1987, **2020**
Rose, W. C., **1866S**
Rosebury, T., 1988, **2056**
Roseman, S. 1113, **1315**
Rosen, E. A., 1532, **1614**
Rosen, F., 423, **239**
Rosen, H., 1546, **1642**
Rosenberg, B., 750, **1048**
Rosenberg, L., 1162, **1094**
Rosenberg, P., 1547, **190**
Rosenblith, W., 489, **603**
Rosenfeld, B., 1092, **447**
Rosenfeld, G., 507, **593**
Rosenfeld, M., 1548, **117**
Rosenfeld, R. S., 1114, **848**
Rosenfeld, S., 1997, **449**
Rosenthal, O., 1115, **1377**
Rosenthal, S. M., 1201, **865**; 1595, **1616a**
Rosenthal, S. R., 508, **785**; 1720, **1766**
Roshe, J., 1684, **1716**; 1721, **1717**
Rosnagle, R. S., 191, **362**
Rosoff, B., 1116, **1129**
Rosoff, M., 750, **1048**
Ross, C. A., 1549, **1527**
Ross, M. L., 1863, **1830**
Ross, R. S., 636, **574**
Ross, S., 1488, **1526**
Rostorfer, H. H., 509, **814**
Roszkowski, A. P., 1550, **62**
Roth, D., 1015, **1373**
Roth, F. E., 1551, **1611**
Roth, J. S., 1117, **827**
Roth, K. L., 1118, **1964**
Roth, L. W., 1552, **1600**
Rothman, S., 1553, **1448**
Rothstein, A., 48, **717**; 1136, **1091**
Rouser, G., 1119, **811**
Routh, J. I., 796, **1335**
Rovenstine, E. A., 1554, **1693**
Rowen, J. W., 1120, **1044**
Rowen, R., 1989, **2057**
Rowland, V., 510, **599**
Rubin, S. H., 1833, **1877**
Rubini, M. E., 511, **787**
Ruch, T. C., 152, **423**
Ruckle, G., 1990, **1997**
Rudich, E. C., 491, **140**
Rudman, D., 1991, **1782**
Rudney, H., 1121, **1069**
Rudoff, S. L., 1122, **955**
Rudolph, A. M., 24, **502**
Rudolph, G. G., 512, **234**
Rueckert, R. R., 1397, **1442**
Ruegamer, W. R. 1123, **1322**
Rumney, G., 1124, **1270**
Rumsfeld, H. W., Jr., 474, **365**; 1255, **808**
Runge, R. R., 501, **714**
Rusch, H. P., 1667, **935**
Rushmer, R. F., 513, **281**; 1621, **1454**
Russell, J. A., 163, **713**
Russell, P. B., 178, **752**
Russell, R. L., 1555, **1694**
Russfield, A. B., 1722, **1730**
Russum, B. C., 522, **580**
Rust, J., Jr., 1893, **2062**
Ruth, H. J., 562, **161**
Rutledge, L. T., Jr., 514, **467**
Rutledge, R., 1522, **1658**
Rutman, R. J., 493, **102**
Ryan, A. H., 515, **1494**
Ryan, K. J., 1125, **1162**
Ryan, R. M., 324, **126**

Saad, F., 360, **260**
Sabbagh, N. D., 1571, **1529**
Sachs, B. A., 318, **459**
Sachs, H., 1126, **878**
Sacks, J., 516, **202**
Sacktor, B., 517, **1152**
Saito, A., 723, **1158**
Salerno, P. R., 1556, **25**; 1606, **75**
Salgado, E., 1557, **83**; 1558, **1695**
Salhanick, H., 518, **1356**
Salk, J. E., 1992, **1950**
Sallach, H. J., 1127, **1140**
Salmon, W. D., **1805**; 1778, **14**
Salter, J. M., 519, **712**
Saltman, P., 1128, **1126**
Salvador, R., 1129, **1145**
Salvin, S. B., 2018, **2023**
Salzano, J., 520, **507**
Salzman, E. W., 521, **576a**
Salzman, T., 1130, **1206**
Samachson, J., 1171, **1134**
Samaras, S. C., 522, **580**
Samet, C., 1720, **1766**
Sampson, M. M., 1864, **1936**
Samson, F. E., Jr., 523, **370**
Samuels, A. J., 1119, **811**
Sanadi, D. R., 913, **1011**
Sandberg, A. A., 1168, **1164**
Sandow, A., 524, **787**; 525, **258**
Santer, U. V., 1131, **866**
Santiago, L. S., 1132, **1919**
Saphra, I., 672, **802**
Sarber, R. W., 1993, **1953**
Sarnoff, S. J., 59, **210**; 71, **231**; 99, **330**; 432, **211**; 577, **228**; 586, **212**
Saroff, H. A., 386, **259**
Sather, G. E., 1927, **1993**
Sauberlich, H. E., **1805**; 1133, **1139**
Saunders, D. H., 1692, **1797**
Saunders, J. P., 1418, **1399**; 1559, **1400**
Savard, K., 1134, **1160**
Sawyer, C. H., 219, **596**
Saxton, G. A. Jr., 283, **352**
Sayers, G., 526, **363**
Saz, H. J., 1994, **1221**
Scanu, A., 1143, **85**
Scarpelli, D. G., 1744, **1754**
Schachman, H. K., 1146, **1050**
Schachter, D., 1560, **1395**
Schachter, H., 274, **536**
Schad, J. S., 1764, **1848**
Schaechter, M., 1995, **1967**
Schaefer, K. E., 527, **436**
Schaffer, N. K., 1135, **820**
Schambye, P., 1266, **951**
Schanker, L. S., 1561, **1643**
Scharff, T., 1136, **1091**
Schayer, R. W., 1137, **339**
Scher, A. M., 528, **459**
Scheraga, H. A., 1138, **970**
Scherf, D., 529, **788**
Schiller, S., 1139, **1197**

Schlegel, J. U., 177, **751**; 530, **499**
Schlenk, F., 1140, **865**
Schlesinger, L., 644, **384**
Schlumberger, H. G., 1723, **166**
Schmatolla, E., 1004, **1910**
Schmidt, C. F., 16, **351**
Schmidt, G., 717, **1344**; 1141, **1252**
Schmidt, J. R., 1996, **1992**
Schmi lt, K. F., 1398, **1416**
Schmidt, L. H., 1578, **1446**
Schmidt-Nielsen, B., 531, **220**
Schmidt-Nielsen, K., 532, **727**
Schmitthenner, J. E., 533, **383**
Schmolinske, A., 391, **246**
Schneider, H. A., 1824, **1896**
Schneider, J. A. 1501, **1526**; 1603, **1576**
Schneider, J. J., 980, **1355**
Schneider, W. C. 1142, **16**
Schneyer, C. A., 534, **706**
Schneyer, L. H., 534, **706**
Schoenberg, M. D., 1724, **1046**
Schoene, R. B., 1794, **1839**
Schoepfle, G. M , 535, **251**
Schoffeniels, E., 536, **442**
Schofield, R. A., 1644, **1715**
Schönbaum, E., 537, **368**
Schottelius, B. A., 538, **255**
Schots, M. C., 1143, **85**
Schrack, W. D. Jr., 1927, **1993**
Schraer, H., 1865, **1924**
Schraer, R. S., 1865, **1924**
Schreiner, G., 47, **388**
Schroeder, L. J., 1664, **1239**; 1866, **1879**
Schuck, C., 1817, **1863**
Schueler, F. W., 1322, **171**
Schulman, M. P., 1144, **1179**
Schultz, F. H., Jr., 1594, **1542**
Schultz, J., 1145, **973**
Schulze, H. O. 696, **54**
Schumaker, V. N., 1146, **1050**
Schwartz, H. S., 1562, **1512**
Schwartz, I. L., 319, **440**; 320, **765**
Schwartz, I. R., 1537, **1 91**
Schwartz, N. B., 539, **264**
Schwartz, R., 1665, **1760**
Schwartz, W. B., 488, **345**; 540, **344**
Schwarz, H. J., 737, **557**
Schwarz, K., 754, **1278**; 1837, **1878**
Schweet, R., 1147, **880**
Schweigert, B. S., 888, **1329**; 1828, **1812**
Schweiss, J. F., 1563, **1430**
Schwerdt, C. E., 825, **1956**
Schwert, G. W., 1148, **1098**
Schwimmer, S., 1149, **1378**
Scott, C. C., 1334, **1637**
Scott, J. C., 23, **337**
Scott, M. L., 1840, **1886**; 1867, **1871**
Scott, W. W., 245, **438**
Scriabine, A., 1564, **1434**
Schrimshaw, N. S., **1870S**; 1868, **1921**; 1872, **1837**
Seager, L. D., 1565, **1449**
Seal, U. S., 1150, **1023**
Searcy, R. L., 1034, **142**
Searle, G. W., 541, **704**
Seegers, W. H., 1151, **40**
Seegmiller, C. G., 987, **924**
Segal, S., 1152, **1064**
Sehon, A. H., 542, **974**
Seibert, R. A., 1531, **76**; 1591, **1585**
Seifter, J., 1291, **88**; 1302, **1657**; 1365, **1468**; 1394, **1485**; 1546, **1642**; 1566, **87**; 1668, **1759**
Seki, S. L., 763, **928**
Selets, J. M., 1726, **1736**
Selitto, J. J., 1567, **1623**
Selkurt, E. E., 543, **674**
Sellers, A. L., 1997, **449**
Semple, R. E., 544, **572**
Sendroy, J., Jr., 311, **579**
Seraidarian, K., 1141, **1252**
Serlin, I., 1725, **193**
Setliff, J. A., 687, **861**
Sevag, M. G., 911, **915**; 1755, **916**
Severinghaus, J. W., 545, **482**; 590, **682**
Sewell, G. E., 693, **829**
Sexter, M. S., 430, **226**
Shadle, O. W., 58, **206**
Shanes, A. M., 546, **252**
Shank, R. E., 753, **1199**
Shanor, S. P., 1289, **172**; 1368, **1639**; 1374, **176**; **1668**, **174**
Shapira, R., 1154, **891**
Shapiro, D. M., 547, **760**
Shapiro, H., 548, **529**
Shapiro, H. S., 1153, **1051**
Share, L., 549, **591**
Sharma, G. P., 1668, **1759**
Skaug, O., 1044, **1100**
Shaw, K. N. F., 1155, **1171**
Shaw, W. N., 1156, **1060**
Shay, H., 1145, **973**
Sheffner, A. L., 1157, **1900**
Shelata, S., 698, **1076**
Shelton, M., 1569, **1408**
Shemano, I. 1570, **1577**
Shemin, D., **1868S**
Shellabarger, C. J., 1697, **139**
Shepard, C. C., 1998, **1944**
Shepard, R. H., 550, **303**
Sheppard, H., 1352, **1436**; 1571, **1529**; 1603, **1576**
Shepperd, I. M., 1369, **1427**
Sherman, F., **402S**
Sherman, F. G., 551, **78**
Shermer, A., 668, **701**
Sherrod, T. R., 1453, **1487**
Sherwin, J. C., 1339, **107**
Sherwood, W. W., 462, **262**
Shettles, L. B., 552, **789**
Shideman, F. E., 1582, **1335**
Shigeura, H., 790, **948**
Shimura, H., 332, **662**
Shinaberger, J. H., 1572, **1488**
Shinowara, G. Y., 1158, **37**
Shkolnik, S., 1720, **1766**
Shmukler, H. W., 1072, **1014**
Shneour, E. A., 1159, **926**
Shock, N. W., **274S**; 448, **229**; 556, **198**
Shofer, R., 1577, **1440**
Shohet, S. S., 728, **1282**
Shore, B., 1291, **88**
Shore, P. A., 1356, **1636**; 1415, **1638**; 1423, **1631**; 1465, **1630**; 1561, **1643**; 1573, **1629**
Shorr, E., 19,; 576, **675**; 1292, **1664**
Shoulders, H. H., Jr., 553, **152**
Shreeve, W. W., 1160, **1068**
Shug, A. L., 1161, **1224**
Shull, K. H., 670, **47**; 1878, **1918**
Shulman, S., 1290, **122**; 1999, **2019**
Shuster, L., 554, **1212**
Sicé, J., 1726, **1736**
Sidbury, J. B., Jr., 1162, **1094**
Sideman, M. B., 1627, **1397**
Sidlofsky, S., 274, **536**
Siebert, G., 1163, **1217**
Siegel, H. 1876, **9**
Siegmund, E. A., 1400, **1418**; 1574, **1535**
Siekevits, P., 1164, **984**
Sievers, M. L., 435, **479**
Sigg, E. B., 1501, **1528**; 1603, **1576**
Silberberg, M., 1727, **1799**
Silberberg, R., 1727, **1799**
Silberberg, S., 555, **2026**
Silver, M. J., 616, **794**
Silverman, M. 1165, **1328**
Silverman, M. S., 2000, **162**
Silverstone, F. A., 556, **198**
Silverstone, J. T., 49, **531**
Sime, J. T., 1784, **1828**; 1869, **1875**
Simet, L., 1135, **820**
Simmons, D. H., 557, **358**
Simmons, E. L., 1728, **1750**
Simmons, R. L., 659, **60**
Simmons, V. P., 1575, MP, p. 628
Simms, E. S., 950, **1185**
Simonson, E., 558, **491**
Simpson, M. E., 122, **521**
Simpson, M. V., 1018, **881**
Simpson, W. L., 1924, **1981**
Singer, S., 807, **936**
Singer, T. P., 932, **1233**; 1011, **1234**
Singleton, W. S., 708, **1347**
Sinisterra, L., 1879, **1904**
Sinsheimer, R. L., 1166, **1053**
Sirny, R. J., 1167, **859**
Sirota, J. H., 270, **349**
Sisson, G. M., 1402, **1540**; 1576, **1541**
Sivertsen, L. N., 178, **752**
Sizer, I. W., 921, **1030**
Sjodin, R. A., 559, **250**
Sjoerdsma, A., 1577, **1440**
Skelton, F. R., 1729, **1738**
Skipper, H. E., 710, **53**
Slabok, M., 1438, **1653**
Slade, H. D., 1902, **2055**
Slanetz, C. A., 1691, **1899**; 1692, **1797**; 1730, **1800**
Slaton, W. H., Jr. 1023, **1293**
Slaunwhite, W. R., Jr., 1168, **1164**
Sloane, N. H., 1169, **1247**
Sloboda, A. S., 1218, **98**
Slocombe, A. G., 560, **322**
Slocum, A C., 963, **939**
Slovik, N., 1171, **1134**
Slusher, M. A., 561, **364**
Smadel, J. E., 1899, **1988**; 1935, **2034**
Small, W. J., 92, **664**
Smart, J. O., 656, **420**
Smith, A. H., 1851, **1856**; 1866, **1879**
Smith, A. H., Jr., 1599, **1575**
Smith, C. C., 1578, **1446**
Smith, C. M., 1579, **1433**
Smith, D. C., 195, **515**
Smith, Donald C., 1900, **1947**
Smith, D. G., 1905, **1994**; 2001, **1990**; **2024 1996**
Smith, D. J , 1580, **1563**
Smith, E. L., 361, **571**
Smith, Emil L., 939, **1108**
Smith, F., 562, **161**
Smith, F. G., 897, **1368**
Smith, F. H., 1402, **1540**
Smith, G. M., 1401, **1496**
Smith, J. D., 891, **1256**
Smith, J. J., 563, **672**
Smith, J. M., 1870, **1903**
Smith, J. T., 1212, **1345**
Smith, L., 1170, **1019**
Smith, P. K., 1429, **1552**; 1464, **1551**; 1475, **1550**; 1478, **1684**
Smith, R., 1952, **2023**

Smith, R. C., 243, **285**
Smith, R. E., 812, **1364**
Smolens, J., 2002, **1962**
Smothers, J. L., 610, **457**
Smyrniotis, P. Z., 902, **947**
Snell, K. C., 1734, **1743**
Snider, R. S., 131, **265**
Snyder, F. F., 564, **790**
Snyderman, S. E., 1871, **1861**
Sobel, A. E., 1171, **1134**
Sobell, S. D., 1766, **1849**
Soderberg, T. E., 1770, **1857**
Sokoloff, L., 565, **372**; 1731, **1764**
Solomon, A. K., 456, **617**; 566, **619**
Solomon, B. A., 1581, **1391**
Solomon, C., 1826, **1894**
Solomon, S., 567, **223**
Somers, L. M., 1318, **1434**
Sommer, E., 1298, **1621**
Sommers, S. C., 1732, **1732**
Sonnenschein, R. R., 568, **475**
Sorof, S., 1172, **92**
Sossen, R., 95, **111**
Spackman, D. H., 1173, **1339**
Spar, I. L., 569, **2003**; 1645, **1758**
Spearing, C. W., 863, **1308**
Spector, E., 1582, **1385**
Spector, H., 1157, **1900**
Spector, S., 1583, **1511**
Speirs, R. S., **163**
Spencer, D., 1174, **856**
Spencer, H., 570, **110**; 1328, **1482**
Spencer, M. P., 146, **337**; 571, **433**
Sperling, F., 1584, **1447**
Sperry, R. W., 436, **777**
Sperry, W. M., 1175, **853**
Sphire, R. D., 1401, **1496**
Spiegel, E. A., 572, **270**; 1294, **1665**
Spiegel-Adolf, M., 1176, **124**
Spink, W. W., 398, **676**; 1890, **2039**
Spinzia, J., 515, **1494**
Spirtes, M. A., 1585, **1510**
Spitzer, J. J., 573, **86**
Spitzer, J. R., 977, **1267**
Spizizen, J., 1177, **1190**
Spoerlein, M. T., 1586, **1617**
Spoto, A. P., Jr., 1644, **1715**
Sprague, J. M., 574, **791**
Springer, G. F., 2003, **2047**
Springs, V., 1182, **1153**
Sprinson, D. B., 1179, **900**
Sprinz, H., 2004, **2036**
Sproul, E., 1672, **1728**
Spruth, H. C., 1178, **1888**
Spurr, G. B., 308, **764**; 575, **677**
Squibb, R. L., 1872, **1837**
Srikantia, S. G., 19, 576, **675**; 1292, **1664**
Srinivasan, P. R., 1179, **900**
Stacey, C. H., 800, **1773**
Stacy, R. W., 481, **430**
Stadie, W. C., 1156, **1060**
Stadtman, E. R., 1180, **1085**
Stahmann, M. A., 1181, **1958**
Stainsby, W. N., 71, **381**; 99, **380**; 577, **288**
Stamler, J., 578, **792**; 579, **503**
Stamler, F. W., 1733, **1741**
Stanley, W. M., **869S**
Stare, F. J., JS, p. 628; 1763, **8**; 1790, **10**; 1858, **7**
Stark, L., 580, **471**
Staron, N., 1445, **175**
Starr, I., 581, **431**
Stasilli, N. R., 367, **235**
Stasney, J., 460, **408**
Staub, A., 1182, **1153**
Stavitsky, A. B., **2032S**; 2005, **2007**; 2031, **2006**
Stavney, L., 1624, **1701**
Steele, R., 8, **312**; 637, **311**; 720, **1336**
Steelman, S., 1850, **1823**
Steenbock, H., 783, **1280**; 1779, **1927**
Stefanini, M., 401, **116**
Steffee, C. H., 1734, **1743**
Steggerda, F. R., 582, **612**
Steigmann, F., 1587, **1644**; 1588, **1696**
Stein, A. M., 1183, **1251**
Stein, E., 525, **258**
Stein, S. N., 339, **687**; 468, **692**; 490, **367**
Stein, W. H., **874S**; 1173, **1339**
Steinberg, D., 1184, **884**
Steinberg, G., 1023, **1293**
Steinfeld, J. L., 583, **129**
Stekol, J. A., 1185, **1249**
Stelos, P., 2006, **1978**
Stempfel, S. J., 1854, **1816**
Stephanson, L., 236, **609**; 1589, **1641**
Stephenson, M. L., 1186, **877**
Stephenson, N. R., 1187, **1349**
Stern, H., 1188, **1103**
Stern, J. R., 1189, **1082**
Stern, K., 1908, **2046**; 2007, **2045**
Stern, K. G., 1116, **1129**
Stetten, D., Jr., 815, **1054**; 1190, **1314**
Stetten, M. R., 1190, **1314**
Stevens, C. M., 1191, **1307**
Stevens, G. T., 451, **208**
Stevens, K. M., 2008, **2005**
Stevens, N., 961, **109**
Stevens, V. L., 797, **1049**
Stewart, B., 1888, **1821**
Stewart, P. A., 584, **268**
St. George, R. C. C., 904, **961**
Stickney, J. C., 585, **705**
Stiffey, A. V., 730, **1306**
Stimmel, B. F., 1192, **1266**
Stimpert, F. D., 2013, **1952**
Stish, R. J., 398, **676**
Stjernholm, R., 969, **1089**
St. John, R., 439, **589**
Stock, C. C., 859, **1034**
Stoelting, V. K., 1407, **1465**; 1333, **1464**
Stohlman, F., Jr., 586, **212**
Stokes, J., Jr., 2002, **1962**
Stoll, A. M., 587, **723**
Stone, C. A., 1590, **1429**
Stone, D., 380, **315**; 588, **1291**; 723, **1158**
Stone, H., 530, **499**
Stotz, E., 1005, **1000**; 1264, **999**
Stracher, A., 1193, **1037**
Strassman, M., 1194, **1303**
States, B., 1195, **1133**
Straube, R. L., 589, **132**
Strauss, W. F., 658, **629**
Strawitz, J. G., 1196, **989**
Strawn, J. R., 1450, **1586**; 1591, **1585**
Strecker, H. J., 809, **1149**
Strength, D. R., 1111, **1168**
Strickland, K. P., 1020, **1004**
Strong, J. P., 1735, **1**
Struglia, L., 1823, **1881**
Stumpe, M., 1737, **1776**; 1741, **68**
Stumpf, P. K., 852, **925**; 1197, **932**
Stupfel, M., 545, **482**
Stupfel, M., 590, **682**
Sturkie, P. D., 591, **560**; 642, **798**
Sturtevant, F. M., 1592, **1654**
Suda, I., 592, **484**
Sudsaneh, S., 1807, **1914**
Sullivan, J. G., 1601, **1530**
Sullivan, W. J., 121, **253**
Sunderman, F. W., 1209, **1479**
Sure, B., 1873, **1928**
Suskind, S. R., 2009, **1985**
Sutfin, D. C., 593, **1032**
Sutherland, E. W., 1091, **1155**
Sutherland, G. B., 594, **36**
Sutherland, J. H. R., 595, **428**
Sutin, J., 258, **416**
Sutton, W. B., 1198, **1225**
Svacha, R. L., 1099, **1835**
Swain, H. H., 1593, **1491**
Swan, H. J. C., 352, **569**
Swann, H. G., 596, **222**
Swanson, H. E., 597, **538**
Swanson, M., 1199, **1069**
Swanson, P., 1769, **1909**; 1793, **1845**; 1874, **1908**; 1889, **1854**
Sweat, M. L., 1200, **1159**
Sweet, N. J., 171, **706**
Swendseid, M. E., 1875, **1841**
Swenson, E. M., 1539, **1463**
Swern, D., 1602, **1797**
Swick, R. W., 945, **1181**; 1736, **1254**
Swift, A., 1942, **2004**
Swift, M. N., 599, **31**
Swim, H. E., 1926, **1938**
Swinehart, L. A., 1719, **1708**
Swingle, W. W., 30, **517**
Swintosky, J. V., 1375, **1553**
Sydenstricker, V. P., 1802, **1842**
Symochowicz, S., 240, **464**
Syverton, J. T., 1919, **1969**
Szekely, E. G., 572, **270**; 1294, **1665**

Tabachnick, I. I. A., 1594, **1542**
Tabachnick, J., 1749, **141**; 2010, **826**
Tabern, D. L., 962, **1320**
Tabor, C. W., 1201, **865**; 1595, **1616A**
Tabor, H., 1201, **865**
Tahmisian, T. N., 598, **69**
Takagi, Y., 1202, **1124**
Takahashi, H., 1174, **856**
Takemoto, K. K., 2011, **1945**
Takenaka, Y., 1148, **1098**
Taketa, S. T., 599, **31**
Talalay, P., 1203, **1163**
Talbert, P. T., 1204, **1079**
Taliaferro, W. H., 1936, **159**; 2012, **1977**
Tallan, H. H., 1205, **1138**
Talmage, D. W., 2006, **1978**; 2012, **1977**
Talmage, R. V., 83, **414**
Tammes, A. R., 796, **1335**
Tamura, R., 1737, **1776**
Tandon, O. B., 1868, **1921**
Tang, P. C., 600, **301**
Tannenbaum, M., 601, **793**
Tans, R. D., 1596, **1409**
Tarleton, G. J., 1921, **1794**
Tarr, H. L. A., 1206, **1121**
Tauber, H., 1207, **1713**
Taylor, A., 602, **519**
Taylor, A. R., 2013, **1952**
Taylor, C. B., 1737, **1776**; 1741, **68**
Taylor, H. L., 255, **500**; 428, **505a**; 603, **505b**; 1762, **3**
Taylor, J. D., 1539, **1463**; 1597, **1537**
Taylor, W. R., 1208, **898**
Taylor, Z., 99, **380**; 586, **212**
Teasdall, R. D., 604, **468**
Tedeschi, R. E., 1209, **1479**
Tein, A. B., 922, **41**

Telford, J., 1447, **1502**
Telka, M., 1244, **890**
Tennent, D. M., 1876, **9**
Teply, L. J., **182S**
Terayama, H., 1227, **832**
Terminiello, L., 1210, **887**
Terner, C., 605, **1080**
Terzin, A. L., 2014, **1989**
Terzuolo, C. A., 606, **244**
Thal, A. P., 370, **565**
Thannhauser, S. J., 717, **1344**; 1141, **1252**
Thayer, P. S., 1598, **1544**
Thayer, S. A., 903, **852**
Theis, G., 1946
Thiers, R. E., 1211, **978**
Thiessen, C. P., 712, **1218**
Thomas, A. J., 1194, **1303**
Thomas, G., 1438, **1653**
Thomas, L., 2015, **2050**
Thomas, L. E., 1312, **1345**
Thompson, D. D., 607, **297**
Thompson, W. D., 1263, **967**
Thomson, J. F., 233, **618**
Thorne, C. B., 170, **1105**
Thurlow, J., 1106, **1203**
Thygeson, P., 1937, **2017**
Tidwell, H. C., 1771, **1846**
Tietz, A., 1234, **1286**
Tildon, J. T., 1846, **1874**
Tillotson, C., 608, **409**
Timiras, P. S., 609, **525**; 1631, **1426**
Timm, E. A., 1967, **1948**; 2013, **1952**; 2016, **1951**
Tipton, C., 1063, **952**
Tipton, S. R., **403S**; 610, **457**
Tislow, R., 1365, **1468**; 1432, **1656**
Titus, D. C., 1625, **1038**
Toal, J. N., 1751, **32**
Tobias, G. J., 488, **345**
Tocantins, L. M., 98, **153**; 1537, **1691**
Tokizane, T., 176, **750**
Tolbert, N. E., 1213, **944**
Tollin, G., 1214, **892**
Tolmach, L. J., 2017, **2061**
Toman, J. E. P., 1369, **1427**; 1599, **1575**; 1600, **1697**
Tomashefsky, P., 824, **56**; 838, **1365**
Tomich, E. G., 1415, **1638**; 1465, **1630**
Tomisawa, H. H., 1738, **1154**
Toolan, H. W., 1739, **1703**
Toporek, M., 1740, **46**
Topper, Y. J., 1215, **1096**
Torchiana, M. L., 1590, **1429**
Torre, A. V., 400, **707**
Torriani, A. M., 1130, **1206**
Totter, J. R., 778, **1241**
Touchstone, J. C., 269, **318**; 611, **592**
Touster, O., 1216, **945**
Towne, J. C., 1217, **1215**
Townsend, P., 1546, **1642**
Townsley, P. M., 1045, **1312**
Toyama, S., 109, **493**
Trafton, H. M., 1306, **1554**
Trapani, I. L., 192, **576**
Trapani, R., 1916, **2035**
Trapold, J. H., 1601, **1530**
Trautman, R., 1237, **976**
Travis, H. F., 1877, **1867**
Treat, A. E., 612, **598**
Tredwell, C., 1819, **1922**
Trémège, M., 919, **1310**
Trew, J. A., 703, **50**
Trousof, N., 1482, **1389**
Troy, W. P., 1218, **98**
Trueheart, R., 1741, **68**
Truitt, E. B., Jr., 1602, **1514**
Trujillo, T. T., 1219, **1337**
Trulson, M. F., 1883, **1916**
Trunnell, J. B., 791, **1243**
Tseng, K. C., 1033, **918**
Tsien, W. H., 1603, **1576**
Ts'o, P. O. P., 1220, **1102**
Tsuyuki, H., 1181, **1958**
Tucker, B. E., 299, **374**
Tucker, D., 43, **605**; 613, **604**
Tunik, B. D., 614, **256**
Tureman, J. R., 1604, **187**
Turino, G. M., 615, **355**
Turner, D. L., 616, **794**
Turner, M. D., 617, **319**
Turner, M. L., 1101, **55**
Tuttle, W. W., 520, **507**
Twombly, G. H., 977, **1267**
Tyberghein, J. M., 1738, **1154**
Tyler, D. B., 618, **903**

Udenfriend, S., 972, **1156**; 1311, **13**; 1356, **1636**; 1465, **1630**; 1605, **1635**
Uhr, J. W., 2018, **2028**
Ulin, A. W., 251, **45**
Umbarger, H. E., 1221, **1305**
Umberger, E. J., 1222, **1649**
Ungar, G., 619, **657**
Unglaub, W. G., 1223, **1930**; 1799, **1814**
Unna, K. R., 1579, **1433**
Upham, H. C., 1358, **1615**
Upton, A. C., 1663, **1793**; 1742, **1748**
Utter, M. F., 1051, **1017**
Uyeki, E. M., 1606, **75**

Valenzuela, J. S., 1854, **1816**
Valk, A. deT., Jr., 1525, **1557**
Vallee, B. L., 300, **835**; 1211, **978**; 1639, **831**; 2019, **1099**
Valles, W. C., 494, **616**
Vanamee, P., 620, **497**
Van Arman, C. G., 1443, **1619**
Vanatta, J. C., 621, **393**
Vanderhoff, G. A., 992, **622**
Vander Wende, C., 1607, **1499**
van Eys, J., 1224, **834**
Van Fossan, D. D., 112, **584**; 622, **586**; 650, **585**
Vangerov, M., 735, **1193**
van Hees, G. R., 1289, **172**; 1374, **176**; 1568, **174**
Van Itallie, T. B., 1878, **1918**
Van Liere, E. J., 535, **705**; 623, **795**
Van Liew, H. D., 624, **582**
Van Maanen, E. F., 1463, **1520**
Van Middlesworth, L., 317, **478**; 625, **796**
Van Reen, R., 700, **1021**
Van Vunakis, H., 732, **1112**; 2020, **1186**
van Wagtendonk, W. J., 1274, **937**
Van Winkle, S., 1304, **1625**
Vars, H. M., 1225, **1780**
Vaughan, B. E., 347, **770**
Vaughan, J. H., 2021, **1966**
Vaughan, L., 1792, **1902**
Vaughan, M., 1184, **884**
Vaughn, C., 1007, **1220**
Velardo, J. T., 626, **797**
Velasquez, T., 479, **583**
Veldhuis, A. H., 1719, **1708**
Vennesland, B., 978, **818**
Venning, E. H., 800, **1773**
Vergeer, T., 172, **630**
Vernier, V. G., 627, **597**
Vernon, L. P., 1226, **1239**
Vesely, B. M., 951, **855**
Vestling, C. S., 1227, **832**
Vick, R. L., 1608, **1411**
Villaca, L., 243, **285**
Villee, C. A., 1228, **1290**
Vinograd, J., 1220, **1102**
Vishniac, H. S., 2022, **849**
Visscher, M. B., **279S**; 379, **394**; 398, **676**
Visser, D. W., 1979, **1995**
Vitale, J. J., 1677, **1788**; 1879, **1904**
Vogel, F. S., 229, **105**
Vogel, H. H., Jr., 628, **28**
Vogel, H. J., 1131, **866**
Vohra, P., 1191, **1307**; 1822, **1859**
Volk, B. W., 1743, **114**
Volk, W. A., 1229, **1316**
Volkin, E., 1230, **1192**
Volwiler, W., 248, **807**
Von Euler, C., 176, **750**; 629, **601**
von Haam, E., 1744, **1754**
von Hippel, P. H., 630, **803**
von Kaulla K. N., 631, **156**
Von Korff, R. W., 1231, **1061**
Vo-Vinh-Hoa, 126, **742**

Wabnitz, C. H., 1015, **1373**
Wachsman, J. T., 607, **941**
Wachstein, M., 1745, **1761**
Waddell, W. J., 1609, **627**
Wade, O. L., 120, **451**; 645, **830**
Wadkins, C. L., 1232, **1237**
Wager, O. A., **2029S**
Wagle, G., 1284, **1579**
Wagman, I. H., 632, **535**
Wagner, C., 898, **943**
Wagner, J., 1594, **1542**
Wagner, M. L., 1138, **970**
Wagner, R. H., 1746, **113**
Wainio, W. W., 1233, **1230**
Wakerlin, G. E., 133, **743**; 208, **564**
Wakil, S. J., 1234, **1286**
Wakim, K. G., 633, **551**
Waksman, B. H., 2023, **2049**
Walaszek, E., 634, **373**
Walaszek, E. J., 1610, **1438**
Wald, G., 1235, **962**
Waldorf, M. A., 1132, **1919**
Waldow, A., 243, **285**
Waldron, J. M., 187, **660**
Walker, B. S., 983, **1123**
Walker, J. B., 1236, **1300**
Walker, M., 1922, **131**
Walker, R. M., 568, **475**
Walker, S. M., 635, **492**
Walker, W. G., 245, **438**; 636, **574**
Wall, J. S., 8, **312**; 637, **311**
Wall, P. D., 328, **470**
Wall, R. L., 458, **237**
Wallenius, G., 1237, **976**
Wallenstein, S. L., 1434, **1501**; 1611, **1506**
Walser, M., 1747, **1765**
Walter, H., 880, **810**
Walton, R. P., 1351, **289**
Wander, H. J., 75, **224**
Wang, C. H., 1238, **1379**
Wang, G. H., 638, **466**
Wang, S. C., 265, **271**; 1431, **1570**
Wanner, R. L., 1880, **1925**
Ward, J. W., 1612, **1612**

Ware, F., 1491, **1519**; 1613, **1698**
Warner, G. F., 160, **333**
Warner, N., 1748, **1731**
Warner, R. C., 979, **969**; 1239, **1257**
Warner, R. G., 1877, **1807**
Warner, W. D., 1862, **1805**
Warnock, N. H., 1456, **1441**
Warren, L., 1240, **912**
Warshaw, L., 1404, **1555**
Wartman, W. B., 1689, **1740**
Wase, A. W., 1241, **1319**; 1336, **1437**; 1614, **1699**
Wasserman, R. H., 1881, **1865**
Watjen, A., 1185, **1249**
Watkins, D. H., 1553, **1443**
Watkins, L. C., 1701, **1762**
Watson, H., 1449, **626**
Watson, M. L., 1164, **984**
Watson, M. S., 2024, **1996**
Watts, D. T., 1615, **1560**
Watts, L. E., 1472, **1425**
Waud, R. A., 1616, **1616**
Waugh, D. F., 630, **803**; 666, **1342**
Wax, D., 1617, **1450**
Way, E. L., 1391, **1588**
Weatherby, J. H., 1493, **1290**
Weaver, R. H., 1242, **867**
Webster, G. C., 1243, **876**
Wedgwood, R. J., 2025, **2069**
Weigle, W. O., **2031S**; 2026, **2065**
Weikel, J. H., Jr., 1618, **1398**
Weil, J., 631, **156**
Weil, L., 1244, **890**
Weil, M. H., 398, **676**
Weil, W., 515, **1494**
Weimberg, R., 794, **950**
Weimer, H. E., 2027, **2038**
Weiner, I. M., 639, **342**
Weinhouse, S., 1194, **1303**
Weinke, K. F., 1181, **1958**
Weinman, E. O., 1245, **1380**
Weinstein, V. A., 304, **615**
Weinstock, I. M., 1882, **1876**
Weintraub, R. L., 1046, **930**
Weisberg, J., 1448, **1513**
Weise, V. K., 413, **518**
Weiser, R. S., 2028, **1943**
Weiss, A. K., 640, **542**
Weiss, B., 641, **1002**
Weiss, C., 1749, **141**
Weiss, H. S., 591, **560**; 642, **798**
Weiss, S., 1185, **1249**
Weiss, S. B., 1246, **1003**
Weissbach, H., 1311, **1634**; 1605, **1635**
Weissmann, B., 1247, **919**
Weiss, A., 529, **788**
Welch, A. D., 871, **96**
Welch, G. H., 59, **210**; 71, **381**; 577, **288**
Weller, J. M., 242, **186**
Wellington, F. M., 1228, **1290**
Wells, I. C., 1248, **1067**
Wells, J. A., 1405, **1489**; 1451, **1469**
Wells, J. G., 21, **512**; 179, **681**; 643, **680**
Wells, W., 1249, **48**
Wendel, H., 1466, **1504**; 1619, **1503**
Werbin, H., 1250, **1265**
Werder, A. A., 1750, **1771**
Wertz, A. W., 1827, **1932**
West, C. D., 108, **397**
West, E. S., 37, **709**
West, F. R., 1620, **1613**
West, J. W., 644, **384**
West, T. C., 513, **281**; 1621, **1454**
Westerfeld, W. W., 895, **1883**
Westfall, B. A., 1622, **1700**
Westheimer, F. H., 675, **815**
Weston, J. K., 237, **1478**; 1489, **1406**
Weston, R. E., 318, **459**
Westphal, U., 1251, **1358**
Westrick, M. L., 1678, **1768**
Weymouth, P. P., 1252, **72**
Wharton, F. D., Jr., 1794, **1839**
Wheaton, R. R., 1499, **1417**
Wheeler, H. O., 120, **451**; 645, **330**
Whitaker, J. R., 1253, **819**
White, A., **993S**
White, A. G., 646, **291**
White, C. W., Jr., 1495, **1500**
White, J., 1751, **32**
White, J. L., 708, **1347**
White, J. M., 1623, **1624**
White, J. M., Jr., 1624, **1701**
White, P. L., 1879, **1904**; 1883, **1916**
White, R. P., 647, **269**
Whitehorn, W. V., 290, **683**
Whiteside, J. E., 1756, **2018**
Whittaker, V. P., 1353, **173**
Wick, A. N., 1254, **1065**
Wiebelhaus, V. D., 1625, **1038**
Wiercinski, F. J., 648, **254**
Wiese, H. F., 1884, **1852**
Wiggans, D. S., 1255, **808**
Wight, R., 1864, **1936**
Wikler, A., 185, **379**; 1377, **1505**
Wilber, C. G., 649, **799**
Wilcox, P. E., 1256, **1111**
Wilgram, G. F., 1257, **1742**
Wilhelmi, A. E., 901, **1791**
Wilkie, M. H., 2029, **2044**
Wilkin, D. R., 873, **843**
Wilkins, C. N., Jr., 1971, **917**
Wilks, J. W., 1632, **1492**
Wilks, S. S., 112, **584**; 622, **586**; 650, **585**
Williams, A. D., 508, **735**
Williams, F. L., 342, **769**
Williams, H. H., 1829, **1917**
Williams, H. L., 584, **268**
Williams, J., 114, **272**
Williams, J. K., 651, **221**
Williams, J. N., Jr., 1259, **1381**; 1774, **1815**
Williams, M. W., 652, **800**
Williams, R. B., 339, **687**
Williams, R. B., Jr., 1751, **32**
Williams, R. H., 1738, **1154**
Williams, T. L., 94, **1260**
Williams, W. L., 653, **801**; 808, **1785**
Williams-Ashman, H. G., 1258, **897**
Williamson, B. J., 654, **498**
Williamson, M. B., 1260, **1382**
Willman, V. L., 125, **650**
Wills, J. H., 1626, **188**
Wilson, H., 811, **1165**
Wilson, M. A., 697, **941**
Wilson, P. W., 1161, **1224**
Wilson, R. H., 1627, **1397**
Wilson, T. H., 1261, **899**
Wilson, V. J., 655, **474**
Wiltshire, L. L., 1339, **107**
Winbury, M. M., 1526, **1601**; 1628, **1419**
Windle, W. F., 656, **420**
Windmueller, H. G., 1262, **1893**
Wingo, W. J., 1263, **967**
Winitz, M., 718, **1806**; 1214, **892**
Winnick, T. C., 593, **1032**
Winter, K. K., 1752, **1746**
Winter, W. I., 209, **335**
Winternitz, W. W., 657, **710**
Wintrobe, M. M., 1801, **1887**
Winzler, R. J., 1249, **48**; 1720, **1706**
Wirts, C. W., 64, **737**
Wiseman, R., 1437, **1640**
Wislicki, L., 1629, **1521**
Wissler, R. W., 1706, **1781**; 1753, **12**
Witebsky, E., 1987, **2020**
Witt, D. M., 346, **524**
Witter, R. F., 1005, **1000**; 1264, **999**
Wittler, R. G., 2030, **2060**
Wixom, R. L., 1885, **1895**
Wizerkaniuk, M., 784, **1066**
Woebke, J., 1893, **2052**
Woessner, J. F., Jr., 694, **1068**
Wolbach, R. A., 658, **629**
Wolbarsht, M., 261, **320**
Wolf, A. V., 511, **786**
Wolf, B., 2031, **2006**
Wolf, D. E., 1852, **1890**
Wolf, G., 883, **1302**; 965, **1279**
Wolf, L. M., 155, **746**; 237, **1478**
Wolf, M. M., 1630, **1486**
Wolfe, D. E., 569, **2003**
Wolf, J. B., 438, **901**
Wolff, E. C., 1265, **1324**
Wolff, H. G., 50, **734**; 1515, **1434**
Wolff, J., 1265, **1324**
Wolpert, A., 1602, **1514**
Wong, H. Y. C., 659, **60**
Wong, J., 930, **1057**
Wood, D. C., 1754, **1723**
Wood, E. H., 207, **570**; 352, **569**
Wood, H. G., **994S**; 1266, **951**
Wood, J. E., 2032, **631**
Wood, R. C., 1755, **916**
Woodard, G., 1414, **1685**
Woodbury, D. M., 1458, **1539**; 1631, **1436**
Woodbury, J. W., 70, **395**
Woodbury, R. A., 1632, **1492**
Woodcock, A. H., 660, **633**
Woodruff, C. W., 1886, **1937**
Woods, E. F., 1540, **1558**
Woods, L. A., 1633, **1444**
Woods, M., 1267, **99**
Woodson, C. S., 822, **169**
Woodward, H., Jr., 132, **196**
Woodworth, P., **181S**
Woolley, D. W., 1028, **1107**
Woolridge, R. L., 1756, **2018**
Wrenshall, G. A., 102, **523**; 602, **519**
Wright, B. E., 1268, **1331**
Wright, B. J., 598, **69**
Wright, E. B., 661, **247**
Wright, H. V., 1787, **1817**; 1844, **1827**
Wright, J. H., Jr., 1058, **1062**
Wright, J. L., 662, **283**
Wright, N. G., 721, **1144**
Wunder, C. G., 663, **643**
Wyatt, G. R., 1269, **1311**
Wycis, H. T., 1176, **124**
Wycoff, H. D., 1270, **115**
Wyngaarden, J. B., 1152, **1064**; 1271, **930**
Wyss, O., 1272, **1383**

Yamamoto, R. S., 1887, **1892**
Yamanouchi, I., 434, **889**
Yamasaki, S., 224, **375**
Yanari, S. S., 1970, **1340**
Yang, C. S., 1888, **1821**
Yang, S. P., 1889, **1854**
Yarbro, C. L., 1273, **1384**
Yard, A. C., 1634, **1597**
Yates, F. E., 24, **502**

Yenson, M., 1980, **2067**
Yiengst, M. J., 556, **198**
Yim, G. K. W., 1635, **1598**
Yohe, M., 1792, **1902**
Yonce, L. R., 664, **192**
Yoneda, M., 2033, **2043**
Yoo, A. E. J., 1636, **1549**
Young, A. C., 600, **301**; 665, **354**
Young, D. E., 1869, **1875**
Young, E. M., 1172, **92**
Young, G. R., 1274, **937**
Young, J. V., 1701, **1762**
Young, P., 1491, **1519**
Young, W. P., 1048, **844**
Youngner, J. S., 2034, **1949**
Yphantis, D. A., 666, **1342**
Yū, T. F., 36, **218**; 270, **349**
Yung, N. C., 828, **840**
Yurochko, F., 1992, **1950**

Zabin, I., 1159, **926**
Zakrzewski, S. F., 1275, **1333**
Zamcheck, N., 1677, **1788**; 1879, **1904**
Zamecnick, P. C., 1186, **877**
Zamenhof, S., 1276, **1183**
Zannoni, V. G., 1277, **1170**
Zaratzian, V. L., 1416, **1609**
Zarrow, M. X., 667, **411**
Zuder, H. L., 1637, **1610**
Zavattaro, D. N., 680, **1284**
Zawoiski, E. J., 668, **701**
Zeitinger, J. R., 1988, **2056**
Zeller, E. A., 1278, **838**
Zemel, R., 102, **523**
Zeigler, D. M., 974, **1016**
Zierler, K. L., 13, **549**; 245, **438**; 282, **554**
Zill, L. P., 1279, **1313**
Zillig, W., 1638, **1648**
Zilversmit, D. B., 669, **57**
Zimmerman, Sister M. A., 793, **854**
Zittle, C. A., 1281, **1101**
Zomzely, C., 670, **47**
Zorn, E. M., 941, **837**
Zubrod, C. G., 1381, **1394**
Zuidema, G. D., 113, **505**; 671, **504**
Zweifach, B. W., 672, **802**; 673, **673**
Zwickey, R. E., 1380, **1403**; 1757, **1783**

SUBJECT INDEX

NOTE: This subject index is a modification of the system of coordinate indexing (see *Coordinate Indexing:* M. Taube and Associates, Documentation Incorporated, 1953) using unit terms rather than cross references.

The user, rather than the indexer, determines what terms he wishes to coordinate. By looking up each of these and noting the serial numbers that are common, he can find the abstracts that combine the items. The index may be used in the usual way for single item search. Index references are the serial numbers of these abstracts.

Due to the short time available for preparation of the index, many compromises in unit terms have been necessary, and frequently general rather than specific entries have been used.

Absorbic acid, 1359, 1360
Absorption, 213, 357, 389, 427, 582, 1208, 1643, 1809, 1850, 1851, 1853, 1881
Acclimatization, 21, 105, 150, 274, 294, 329, 339, 347, 594
'Acerola' juice, 782
Acetal phosphatides, 1068
Acetate, 194, 861, 930, 1034, 1160
Acetazoleamide, 540, 1458
Acetic acid, 1424
Acetoacetate, 772, 1231
Acetoacetyl glutathione thioesterase, 1189
Acetobacter suboxydans, 943
Acetylable steroids, 714
N-acetyl-L-aspartic acid, 1205
Acetylcholine, 14, 47, 1372, 1408, 1579
Acetylcholinesterase, 1408, 1725
Acetyl digitoxin, 1617
N-acetylglucosamines, 919
Acetyl strophanthidin, 515
Acetylthiocholine, 1021
Acetyltryptophan, 374
Acid aminopolysaccharides, 1102
Acid-base, 179, 242, 303, 355
Acid secretion, 887
Acidosis, 74, 216, 488, 1845
Acidosis, diabetic, 815
Aconitase, 712
Acquired hemolytic anemia, 1118
ACTH, 30, 268, 417, 474, 526, 537, 670, 881, 1656
Action potential, 84
Active transport, 148, 245, 475, 536
Actomyosin, 614, 848
Acylase, 1037
Acyl CoA dehydrogenases, 706
Acyl glucuronides, 1560
Adaptation, 110
Addiction, 185, 1377, 1378
Adenine, 909
Adenine nucleotides, 1076
Adenofibrosis, 1732
Adenosine, 695
Adenosine-diphosphate-ribose, 873
Adenosine-5'-phosphate, 1060
Adenosine phosphoryl carbonate, 694
Adenosine triphosphate, 63, 68
S-adenosylmethionine, 746
Adenyl-acylates, 713
Adenylic-5'-phosphoric acid deaminase, 971
Adenylosuccinate, 982
Adrenal glands, 53, 55, 190, 191, 195, 222, 234, 247, 277, 310, 323, 356, 410, 442, 459, 467, 480, 507, 537, 652, 657, 801, 804, 844, 881, 1422, 1443, 1469, 1485, 1487, 1656, 1658, 1685, 1690, 1710, 1729, 1770, 1839
Adsorption, 1746
Aeration, 1094
Age, 422, 448, 556, 558, 642
Agglutination, 1945, 2021
Aircraft accidents, 650
β-Alanine, 995, 1180
Albumin, 211
Alcohol, 1457
Alcoholchloral hemi-acetals, 1365
Alcohol dehydrogenase, 999, 1224
Aldosterone, 800
Alkali metal, 1104
Allergen, 1956
Alligator, 291, 769
L-Allothreonine, 926
Alloxan, 838, 1342, 1492
N-allylnormorphine, 1288, 1619
Alpha ketol, 912
Altitude, 7, 21, 110, 195, 347, 441, 479, 609
Amabacides, 1435
Amethopterin, 1381
Amino acids, 402, 736, 900, 914, 1016, 1018, 1032, 1085, 1104, 1119, 1126, 1167, 1173, 1186, 1243, 1382, 1519, 1770, 1782, 1785, 1803, 1843, 1851, 1855, 1881, 1888, 1889, 1926
Amino acid esterases, 1484
Amino acid-nucleotide complexes, 1075
D-Amino acid oxidase, 944, 1263
Aminobutyric acid, 894
Amino groups, 1256
5-Amino-4-imidazolecarboxamide, 911
5-Amino-4-imidazolecarboxamide ribotide, 993, 1240
5-Amino-4-imidazole-(N-succinylocarboxamide) ribotide, 993
6-Aminonicotinamide, 924
Amino nitrogen levels, 680
Aminopeptidases, 1061
Aminophylline, 220
β-Aminopropionitrile, 1061, 1705
Aminopterin, 1677, 1784
2-Amino-1,3,4-thiadiazole, 1218
Ammonia, 863, 1493
Amniotic fluid, 552
AMP deaminase, 1027
Amphenone 'B', 507
Amphibia, 786, 833
Amylase, 20, 1693
Analgesics, 1304, 1331, 1396, 1401, 1448, 1567, 1607, 1623
Anamnestic response, 2027
Anaphylaxis, 1586
Androblastoma, 1748
5-Androstene-3,17-dione, 1203
Androsterone glucuronoside, 980
Anemia, 87, 128, 392, 411, 1654, 1781, 1801, 1875
Anesthetics, 96, 804, 1289, 1421, 1624
Aneurysm, 1734
Angiotonin, 737, 889
Anhydrocitrovorum factor, 1165
Anserine, 593, 1019
Antabuse, 1451
Anthelmintics, 1350
Anthranilic, 733
Anthrone, 1279
Anthropometry, 41,
Antibiotics, 816, 1953
Antibodies, 562, 569, 1118, 1653, 1703, 1713, 1715, 1754, 1756, 1859, 1896, 1911, 1912, 1913, 1941, 1951, 1954, 1963, 1974, 1984, 1987, 2002, 2005, 2008, 2012, 2018, 2029, 2031
Anticholinergic drugs, 1551
Anticholinesterase, 1403, 1504, 1547, 1604, 1626
Anticoagulants, 338
Anticonvulsants, 1296, 1402, 1574, 1594, 1597, 1599
Antidiuresis. 219, 530
Antifibrinolysin. 1029
Antigen, 1181, 1911, 1912, 1917, 1953, 1955, 1956, 1974, 2029
Antihistamines, 111, 1628
Antirabies vaccination, 1914
Antisera, 885, 1925
Antitoxins, 1948
Aorta, 563, 662, 1734, 1735
APC viruses, 1756, 1937, 1972
D-Arabinose, 794
L-Arabinose, 516, 1229
Aramine, 432
Arginase, 747, 837
Arginine, 837, 1825, 1861
Armadillos, 83
Arsanilic acid, 1178

Arsenite, 1199
Arteriosclerosis, 273, 1510, 1709, 1741
Arteritis, 1676
Arterenol, 1490
Arthropod-borne virus diseases, 1996
Arthus reaction, 1940
Artificial kidney, 1701
Ascaris, 1059, 1994
Ascites, 22, 876, 910, 986, 1061, 1714, 1901, 1922, 1946
Ascorbic acid, 18, 753, 782, 801, 987, 1054, 1106, 1122
Ash, 1840,
Asparagine, 1016, 1133, 1594
Aspartic acid, 1039, 1133
Assimilatory quotient, 739
Atherogenesis, 1876
Atheromatosis, 669,
Atherosclerosis, 165, 579, 659, 669, 704, 1469, 1735, 1763, 1790, 1831, 1858
ATP, 892, 1027, 1043
Atrophy, 279
Atropine, 1386, 1494, 1579, 1612, 1620
Aureomycin, 1842, 1868, 1875
Autolysis, 1260
Automatic recording apparatus, 1173
Autoperfusion, 1092
Autoprothrombin I, 1151
Auxins, 1379
Avocado, 676
Axone discharge, 60
Azacyclonol, 1592
8-Azaguanine, 807, 1002
Azaserine, 774
Azetazoleamide, 1406
Azide, 315, 861, 1199, 1552
Azo dyes, 1598
Azoproteins, 1172
Azotobacter, 861, 1272
6-Azuracil, 871

Bacteremia, 1670
Bacteria, 672, 1670, 1684, 1712, 1721, 1754, 1755, 1890
Bacteriophage, 692, 952, 1053, 1230, 2017, 2020
Bacterium tularense, 1232
Barbiturate, 96, 185, 225, 1377, 1407, 1442, 1452
Behavior, 14
Benadryl, 1921
Benzimidazoles, 674, 759
Benzoate, 944
Benzoyldipeptides, 1214
Besnoitia jellisoni, 1673
Betaine, 1067
Bicarbonate, 654
Bicycloheptenes, 1326, 1574
Bile, 541, 1115, 1225, 1647, 1707
Bile acids, 793, 830, 903, 1991
Bile duct, 1225, 1688
Biotin, 1971
Biphenyl, 1313
Blood, 71, 72, 211, 249, 369, 384, 504, 542, 601, 1449, 1609, 1855, 1872
Blood clotting, 64, 154, 278, 287, 322, 338, 358, 401, 421, 429, 493, 553, 594, 616, 903, 1642, 1702, 1743, 1757
Blood flow, 38, 93, 146, 160, 172, 272, 295, 1572
Blood glucose, 1796
Blood groups, 1931, 2003
Blood vessels, 307, 378
Blood volume, 136, 160, 207, 214, 361, 407, 544, 583, 636, 645
Body weight, 41
Bone, 186, 960, 1661, 1686, 1731, 1848, 1865
Bone marrow, 53, 419, 601
Brain, 14, 49, 60, 114, 188, 224, 225, 229, 261, 292, 299, 353, 366, 387, 388, 403, 433, 436, 461, 463, 476, 489, 514, 565, 568, 572, 627, 634, 968, 973, 1020, 1057, 1150, 1175, 1205, 1631
Bread, 1808, 1817
5-Bromouracil, 1166, 1276
Bufotenine, 1370
Burns, 139, 232, 259, 508, 587, 1747
Butter, 1856
Butylalcohol, 257
Butylated hydroxyanisole, 1794
γ-Butyrobetaine, 1816
Butyryl adenylate, 1204

Cadmium 115, 780, 781
Caffeine, 768, 1321
Calcification, 1171, 1779
Calcium, 1043, 1272, 1491, 1798, 1819, 1865
Calcium; Ca^{45}, 224, 729, 1880, 1881
Caloric intake, 1788
Calories, 1862, 1879
Calorimeter, 45, 425
Camel, 532
Canavanine flavianate, 1464
Canine distemper, 1954
Capillaries, 4, 294
Capillary permeability, 417
Capillary resistance, 42
Carbamidines, 1483
Carbamyl phosphate, 773, 869
Carbohydrate, 8, 13, 48, 132, 203, 603, 657, 1421, 1730
Carbohydrate metabolism, 217, 296, 355, 446, 551, 910
Carbohydrate oxidation, 879
Carbohydrate synthesis, 1059
Carbohydrate tests, 975
Carbon; C^{14}, 221, 720, 1656
Carbon dioxide, 339, 347, 375, 412, 447, 490, 527, 590, 1213, 1540
Carbonic anhydrase, 527, 620, 769, 981
Carbonic anhydrase inhibitors, 1402, 1576
Carbon monoxide, 615
C^{14}-carboxyl-labeled nicotinamide, 1775
Carcinogen, 1744
Cardiac arrhythmias, 1364, 1471, 1477, 1553, 1565, 1613
Cardiac output, 71, 86, 232, 306, 352, 581
Cardiometer, 44
Carnitine, 835, 1816
Carnosine, 593
Carotene, 688
Carotenoids, 1159
Carotid sinus, 133, 286
Casein, 1262, 1854, 1861, 1904
Catalase, 1277
Cataracts, 1826
Catecholamines, 1367
Cathartic agents, 1404
Cations, 1025
Caudate nucleus, 131
C-C hydroylsis, 1154
Cell division, 239, 1674
Cellobiose, 1815
Cellulolytic bacterium, 1815
Central nervous system, 343, 592
Cephalins, 870
Cerebellum, 131, 182, 433, 584
Cerebral circulation, 198, 1472
Cerebral lesions, 50
Cerebroside, 1089
Cervix, 1744
Cesium, 1841
Chelates, 1541, 1542
Chenodeoxycholic, 1000
Chinook salmon, 1782
9 - (2 - Chlorethyl) ethylaminomethyl, 1498
Chloride, 129, 171, 245, 887, 1691
Chlorin derivative, 1441
Chlorisondamine, 1571
Chloroform, 1520
Chlorophyll, 1420
Chlorpromazine, 89, 446, 575, 656, 1294, 1336, 1337, 1341, 1355, 1368, 1419, 1440, 1454, 1460, 1467, 1486, 1496, 1508, 1534, 1554, 1592, 1614
Cholangiofibrosis, 1778
3β-Cholestanol, 1647
Chlortetracycline, 1649
Cholesterol, 97, 213, 332, 385, 389, 395, 760, 829, 830, 862, 1056, 1065, 1114, 1707, 1737, 1759, 1762, 1790, 1831, 1849, 1855, 1858, 1876
Cholesterol esterase, 951
Choline, 156, 690, 1185, 1246, 1257, 1538, 1593, 1778, 1887
Cholinergic agents, 899
Cholinesterase, 242, 331, 664, 822, 937, 1021, 1289, 1322, 1353, 1368, 1374, 1442, 1533, 1568
Chondroitin sulfate, 753, 1012, 1139
Chromatography, 641, 736, 1005, 1090, 1173, 1970
Chylomicra, 853, 1771
α-Chymotrypsin, 866, 1135, 1253, 1425, 1646
Chymotrypsinogen, 1256
Circulation, 16, 22, 142, 201, 209, 271, 407, 506, 548, 568, 571
Cirrhosis, 1716, 1886, 1904
Citrate, 783, 856, 1273
Citrovorum factor, 681, 888, 1132, 1165, 1275
Clearing factor, 1143
Clostridium, 1086, 1180, 1931
Clothing, 660
Co_3-activating enzyme, 694
$Cobalt^{60}$, 779
Cobaltoprotein, 486
Cocarboxylase, 1795
Coenzyme A, 221, 698, 1095, 1888
Colchicine, 501, 1295, 1610
Cold, 130, 147, 150, 182, 274, 284, 290, 308, 316, 317, 377, 383, 408, 435, 450, 523, 594, 640
Collagen, 262, 1055
Colloids, 170, 1358
Color vision, 204
Complement, 1695, 1894, 1906, 1968, 1980, 1983, 2026
Complement fixation, 1093, 1955, 1964
Conalbumin, 813
Conditioned reflexes, 50
Conditioned response, 292
Conjunctival vessels, 1515

Connective tissue, 337, 1705
Constipation, 1588
Contraction, 34, 538
Convulsants, 111, 185
Cooling, 592
Coombs test, 1966
Copper, 1801, 1838
CO_2 production, 1101
Coprostanol, 1114
Corn, 1830, 1854
Coronary embolization, 644
Coronary flow, 23, 47, 54, 99, 145, 169, 333, 342, 533
Coronary vasodilators, 1453, 1456, 1630
Corticosteroids, 27, 775, 989
Corticosterone, 743
Cortisol, 743, 1711
Cortisone, 8, 81, 165, 175, 190, 217, 234, 269, 285, 653, 997, 1327, 1362, 1569, 1586, 1644, 1656, 1659, 1691, 1698, 1734, 1750, 1780, 1933, 1944, 1958
Corynebacterium, 1487
CO_2 tolerance, 105
Coumarin, 1757
Coupled phosphorylation, 968
Coxsackie viruses, 1932
C-reactive protein, 1093
Creatinine nitrogen, 1870
Creatinuria, 1781, 1846, 1886
Croton oil, 1705
Cuneate nucleus, 9
Curare, 476
Cyanide, 859, 1418, 1559
Cyclamate, 1437
Cycloserine, 1344
Cyst, 1673
Cysteamine oxidase, 1129
Cysteic acid, 1039
Cysteine oxidation, 1109
Cystine, 248, 1035
Cytidine, 224
Cytochemistry, 28
Cytochrome, 751, 940, 1226, 1681
Cytochrome oxidase, 959, 1094, 1233
Cytoplasm, 1220
Cytosine, 894, 1082

Daphnia magna, 390
DDT, 1363
DDT-dehydrochlorinase, 984
Decarboxylase, 1198
Decarboxylation, 1994
Decerebration, 638
Dehydration, 239, 326
l-Dehydrocortisol, 1168
l-Dehydrocortisone, 1168
Dehydroepiandrosterone, 310
24-Dehydroergosterol, 1048
Dehydrogenase, 763, 999, 1090, 1148, 1161, 1227, 1231, 1639
Deiodination, 1123
Denaturation, 979, 1030
Denitrifying bacteria, 1226
2-Deoxyglucose, 1254
Deoxypentose nucleic acid, 750
Deoxyribonucleic acid, 162, 882, 1146, 1153
Deoxyribosidic compounds, 1142
Desoxyribonucleic acid, 348, 381, 814, 1342, 1696
Detoxication, 1092
Dextran, 544
Diabetes, 37, 132, 164, 183, 519, 1024, 1058, 1308, 1644, 1795, 1845
Diaminopimelic acid, 851
2,6-Diaminopurine, 1271
Diamox, 78, 220, 270, 467, 488
Diaphragm, 1156
6-Diazo-5-oxo-l-norleucine, 774
Dibenzyline, 327, 350, 1292, 1506
1,2-Dibromo-3-chloropropane, 1459
Di-deoxyribonucleotides, 1081
Diet, 33, 255, 379, 389, 428, 603, 718, 742, 1647, 1676, 1687, 1707, 1727, 1730, 1733, 1737, 1740, 1753, 1761, 1769, 1793, 1802, 1803, 1805, 1807, 1819, 1830, 1840, 1849, 1854, 1866, 1867, 1873, 1887
Di-ethionine, 839
Diethylstilbestrol, 678, 1877
Diffusion coefficients, 666
Digestion, 374, 1210, 1772
Digitalis, 1404, 1622
Digitoxin, 1345, 1528, 1533, 1534, 1581, 1617
Digoxin, 1617
Dihydrohydroxymorphinone, 1611
Dihydromorphinone, 1310
Dihydromurexine, 1343
Dihydropyrimidine nucleosides, 864
Dihydroxyfumaric acid, 1127
Dihydroxyphenylethylamine, 972
17α,21-Dihydroxyprogesterone, 1125
Diiodotyrosine, 1123
Diisopropylfluorophosphatase, 1037
Diisopropyl phosphorofluoridate, 1135
Diketosuccinate, 958
Dilantin, 155, 1312
Dimerization, 931
Dimethylaminoethanol, 1185
Dimethylthetin, 1169
Dimethylthetin-homocysteine methylpherase, 799
Dinitrofluorobenzene, 1253
Dinitrophenol, 120, 754, 1562
Dinitrophenyl-polyvalyl-proteins, 1193
3,3'-Diodothyronine, 1389
Diphenyline, 796
N,N'-diphenyl-p-phenylenediamine, 1783, 1794
Diphenydramine, 1637
2,3-Diphosphoglycerate, 1217
Diphosphopyridine nucleotide, 752, 935
Diphtheria, 1948, 2033
Disodium adenosine triphosphate, 648
Disulfide bonds, 1960
Diuresis, 177, 260, 351, 540, 1286
Diuretics, 1371, 1476, 1591
Diving, 375
DNA, 692, 945, 1082, 1923, 2010
DOCA, 1558
DOPA, 1155
DPN, 554, 867, 906, 978
DPNH, 675, 699
Dream, 144
Drosophila, 246
Drugs, 140, 1376, 1438, 1580
Dyes, 167, 1718, 1724

ECHO virus, 1932, 1957
Eclampsia, 1733
Edema, 85, 114, 489
Egg yolk, 717, 1245, 1843
Elastase, 1513, 1752
Electric eel, 536
Electrical activity, 366, 376, 567, 1032
Electrocardiogram, 280, 424, 528, 558
Electrochromatography, 927
Electroencephalogram, 114, 219, 510, 560, 584, 635, 1294, 1296, 1355, 1479, 1563, 1600
Electrolytes, 34, 108, 153, 190, 233, 277, 330, 344, 386, 391, 540, 546, 566, 578, 671
Electromyogram, 604
Electron microscope, 1676, 1986
Embryonic development, 1844
Emphysema, 220, 465
Encephalitis, 1905, 1927, 1933
Encephalomyelitis, 938, 1824, 1979
Endocarditis, 7, 1684, 1721
Endocrines, 609, 610, 1672, 1732
Endotoxins, 1890, 2015
Endplate potentials, 77
Enheptin, 1361
Enthanolamine, 1246
Enzymes, 40, 55, 251, 300, 393, 431, 434, 472, 473, 483, 512, 738, 1078, 1103, 1111, 1112, 1148, 1338, 1639, 1646, 1665, 1681, 1693, 1725, 1745, 1752, 1806, 1910, 2009
Eosinopenic response, 1416
Epidemic keratoconjunctivitis, 1937
Epimerase, 902, 907
Epinephrine, 1, 72, 125, 137, 180, 247, 327, 342, 350, 356, 597, 655, 719, 972, 1054, 1405, 1497, 1525, 1540, 1550, 1615, 1621, 1637, 2015
Equine abortion virus, 1651, 1717
Equiperdum, 1327, 1636
Ergosterol, 588
Ergothioneine, 1026
Erythrocytes, 69, 167, 233, 254, 257, 266, 456, 475, 494, 566, 586, 728, 983, 992, 1044, 1119, 1695, 1846, 1897, 1945, 1983, 2006
Erythrocytin, 908
Erythropoiesis, 139, 392
D-Erythrose-4-phosphate, 1179
Escherichia coli, 1053, 1110, 1177, 1230, 1755, 1898
Ester, 1810
Esterase, 56
Estradiol, 893, 966, 977, 1124, 1192, 1638
Estrogens, 686, 1097, 1335, 1662, 1671
Estrone, 1250
Ethanol, 354
Ethionine, 1716, 1832
Ethylene oxide, 1262, 1887
N-ethyl-N-hexahydrobenzyl-β-chloroethylamine, 576
N-ethyl-3-piperidyl diphenyl acetate, 1565
Ethyltrichloramate, 237, 1330
Evans blue, 207
Excitability, 328, 606
Excitation, 17
Excretion, 24, 61, 1880
Exchanges, 344
Exercise, 169, 336, 340, 645, 659
Eye, 49, 632

Fasting, 132, 184, 599
Fat, 184, 193, 458, 553, 708, 1100, 1676, 1692, 1730, 1760, 1762, 1772, 1793
Fatty acids, 97, 187, 194, 215, 408, 573, 588, 850, 1065, 1197, 1234, 1767, 1772
Fern, 135
Ferritin, 19, 1128, 1202

FD & C Orange, 1315, 1373
FD & C Red No. 32, 1373
Fibrillation, 109, 267, 424
Fibrinogen, 1270, 1743, 1746
Fibrinolysis, 358, 631, 948
Fibroblasts, 298, 1035, 1926, 1939, 1995
Fish, 649
Flavonones, 724
Flavin peptides, 932
Flavonoids, 1283
Flavoprotein, 706
Fluid, 407, 589
Fluorine, 868, 960, 1014, 1836, 1857
9-α-Fluorohydrocortisone, 1596
Fluoromar, 1624
o-Fluorophenylalanine, 1184
Fluoropyruvate, 812
Fluoropyruvic acid, 744
Folic acid, 840, 1132, 1165, 1740, 1784, 1857, 1868, 1875
Food intake, 1835
Formaldehyde, 942, 1074, 1992
Formalin, 2016
Formamidinoglutaric acid, 1031
Formate, 345, 795, 876, 1087, 1183, 1249
Formiminoglycine, 1086
N^{10}-formylfolic acid, 1031
α-N-formylglycinamide ribotide, 1240
N^{10}-formyltetrahydrofolic acid, 916
Forsaman antiserums, 2012
Freezing, 223
Frenquel, 1440
Frostbite, 658
Fructose, 183, 1853, 1878
Fucose, 843
Furfurylideneacetone, 1413

Galactose, 634, 794, 1266
Gall bladder, 1647
Galvanic skin reflex, 638
Gamma globulin, 1703, 1947, 1960, 1983, 2005
Ganglia, 1387, 1501
Ganglionic blockade, 1488, 1529, 1549, 1590, 1601
Gas analyzer, 1349
Gastric mucosa, 116, 129
Gastric secretion, 64, 138, 236, 321, 625, 668, 1718
Gas tensions, 283
Gastrointestinal tract, 171, 374
Gecko, 134
Gelatin, 1042
Gelatinase, 1055
Genetics, 396
Globulins, 1145
Glomerulonephritis, 1684, 1703
Glucagon, 202, 519, 1182, 1738
Glucogenesis, 1160
Gluconokinase, 970
3-0-α-D-glucopyranosyl-D-glucose, 1063
Glucose, 163, 164, 183, 285, 637, 691, 1004, 1058, 1096, 1208, 1238, 1254, 1261, 1815, 1878, 1909
d-Glucosamine, 438, 1113
Glucose-1-phosphate transphosphorylase, 1162
Glycine, 1885
N-glucosylglycine, 1110
Glucuronidase, 147, 819
Glucuronolactone, 806, 1323
Glutamate, 697, 968
Glutamic acid, 741, 869, 896, 1039, 1127, 1263
Glutamine, 711, 740, 863, 1126, 1594, 1909
γ-Glutamyl phosphate, 976
Glutethimide, 1352
Glyceric acid, 721
Glycerol, 928, 947, 1809
Glyceryl methylthiol ester, 721
Glycinamide ribotide, 857, 878
Glycine, 778, 801, 834, 842, 905, 1869
Glycocyamine, 1067
Glycogen, 32, 163, 202, 471, 885, 898, 1190
Glycogenesis, 988
Glycogen synthesis, 758, 1156
Glycolic acid, 1213
Glycolysis, 824, 845, 1044, 1156
Glycoprotein, 938, 2027
Glycosides, 1452
Glycyrrhiza, 362
Goat, 11, 12
Gold, 485, 1719
Goldthioglucose, 1835
Gonadectomy, 760
Gonadotrophin, 29, 423
Gonads, 423, 458, 512, 608
Growth, 95, 135, 173, 324, 346, 380, 455, 626, 663, 909, 1099, 1717, 1791
Guanine, 711, 1038
Guanosine-5′-phosphate, 1038
Guanosine triphosphate, 982
Guatemala, 1868

Hatching stimulant, 1107
Headache, 1515
Hearing, 313, 353, 489, 510, 627, 629
Heart, 15, 24, 34, 57, 58, 59, 71, 85, 101, 159, 178, 241, 243, 267, 296, 302, 330, 350, 371, 418, 451, 470, 498, 513, 528, 529, 532, 577, 623, 649, 879, 1163, 1188, 1257, 1346, 1351, 1385, 1660, 1689, 1700, 1721, 1753, 1942
Heat, 130, 334, 372, 411
HeLa cells, 696, 855, 1756, 1891, 1909, 1919, 1920, 1961, 1962, 1998
Helenine, 1903
Heliotrine, 1545
Heme synthesis, 1144
Hemoconcentration, 435
Hemocyanin, 1950
Hemodialysis, 1701
Hemodynamics, 52, 86, 229, 243, 306, 384, 443, 469, 481, 503, 543, 571, 577, 581, 591, 595, 602, 642
Hemoglobin 25, 364, 505, 764, 1041, 1754, 1855
Hemoglobinuria, 1833
Hemolysis, 62, 223, 1936
Hemolytic disease, 2007
Hemophilia, 98, 1746
Hemorrhage, 191, 336, 673, 1040
Heparin, 264, 298, 305, 429, 573, 831, 925, 1042, 1062, 1084, 1474, 1743
Hepatic coma, 1587
Hepatitis, 1651, 1717
Heptacyclazine, 1396
Hepatoma, 1142
Heptuloses, 1279
Hesperidin methyl chalcone, 1557
Hexamethyleneimines, 1378
Hexokinase, 1025, 1136
Hexosamine, 1507
Hibernation, 301, 373, 492
Histamine, 4, 399, 1137, 1414, 1427, 1517, 1720
Histidine, 682
Histones, 771
Homocysteine, 1169
Homogentisic acid, 1277
Homoprotocatechuic acid, 1155
Homovanillic acid, 1155
Hufnagel valve, 586, 1721
Hyaluronic acid, 735, 788
Hydantoin, 1325, 1521
Hydration, 1049
Hydrazine, 1493, 1512
Hydrocortisone, 549, 617, 811, 1675, 1890
Hydrogen, 509, 978, 1161
Hydrogen ion concentration, 499, 590, 654
Hydrogenase, 954, 1011, 1064
Hydrolysis, 1810
11β-Hydroxy-Δ^4androstene-3-17-dione-4-C^{14}, 727
19-Hydroxyandrostenedione, 802
3-Hydroxyanthranilic acid, 872, 1024
Hydroxy apatite, 1195
Hydroxyaspartic acid, 1127
β-Hydroxybutyric acid, 1231
17-Hydroxycorticosteroid, 413, 490
14-Hydroxydihydromorphinone, 1310
β-Hydroxyisobutyric dehydrogenase, 1108
Hydroxylamine reductase, 1174
Hydroxylase, 1009, 1125
Hydroxylation, 723, 957, 1134, 1200
β-Hydroxy-β-methylglutaric acid, 1121, 1248
8-Hydroxy-7-methylguanine, 1247
5-Hydroxymethyluracil, 818
N(4-Hydroxy-1-naphthyl)-isomaleimide, 1077
6-Hydroxynicotinic acid, 875
p-Hydroxyphenyllactic acid, 849
p-Hydroxyphenylpyruvic acid, 1071, 1277
21-Hydroxypregnanedione, 1564
17α-Hydroxyprogesterone, 1125
Hydroxyproline, 677, 883, 1068
1-3-Hydroxy-N-propargyl morphinan, 1495
11β-Hydroxytestosterone, 1134
5-Hydroxytryptophan, 1311, 1605
3-Hydroxytyramine, 1367
Hypercapnia, 78
Hypercholesteremia, 1858
Hyperheparinemia, 1084
Hyperkalemia, 451
Hyperlipemia, 128, 157
Hyperpnea, 290
Hypertension, 133, 208, 210, 234, 286, 307, 309, 325, 370, 409, 413, 889, 1455, 1557, 1595, 1648, 1666, 1685, 1708, 1729
Hyperthermia, 3, 181, 585
Hyperthyroidism, 470
Hyperventilation, 179, 643
Hypervitaminosis A, 1783
Hypnotic drugs, 1468
Hypoglycemia, 334
Hypokalemia, 109
Hypoproteinemia, 128
Hypotension, 76, 333, 1726
Hypotensives, 1500, 1503, 1526, 1552, 1635
Hypothalamus, 12, 117, 268, 403, 474, 527, 561
Hypothermia, 27, 54, 86, 104, 453, 545, 1319, 1398, 1410, 1430, 1499, 1502, 1570, 1616, 1670

Hypoxanthine, 710
Hypoxemia, 371
Hypoxia, 5, 25, 112, 195, 214, 437, 495, 522, 523, 622, 777, 1648, 1694

Imidazoleglycerol phosphate, 682
ββ-Iminodipropionitrile, 17
Immobilization, 803
Immunization, 1049, 1900, 1916, 1935, 1956, 1959, 1966
Indoles, 281
Infections, 1673, 1949
Inflammation, 1659
Influenza virus, 923, 1464, 1475, 1907, 1928, 1930, 1934, 1938, 1944, 1986
Inhibition, 1085, 1988
Inosine hydrolase, 946
Inosinic acid, 982
Inositol, 415
Insecticides, 1380
Insulin, 39, 166, 203, 261, 285, 516, 556, 637, 701, 758, 815, 930, 936, 1024, 1058, 1152, 1156, 1254, 1679, 1683, 1738, 1982
Intestine, 158, 398, 541, 585, 1561, 1677, 1751
Intrinsic factor, 808, 1589
Inulin, 124
Iodine, 226
Iodine; I^{131}, 962, 1671
Ions, 74, 90, 764, 1428, 1444, 1461, 1516, 1608, 1613
Ioresin, 962
Iproniazid, 1334
Iron, 756, 777, 1045, 1064, 1128, 1299, 1706, 1801, 1883
Isoagglutinins, 1908, 2007
Isocitric dehydrogenases, 1163
Isohemagglutinins, 2029
Isoleucine, 730, 1222, 1770
Isomerase, 1203
Isoniazid, 1079, 1481
Isoproterenol, 1726
Itaconate, 712

Japanese virus, 1962, 2001, 2025
Jejunum, 245, 357

Keto acids, 763
α-Keto acid keto-enol tautomerase, 1071
β-Ketoadipic acid, 929
2-Keto-3-deoxy-7-phospho-D-glucoheptonic acid, 1179
β-Ketodipyl CoA, 929
16-Ketoestradiol-17β-16-C^{14}, 977
Ketogenesis, 605
α-Ketoglutarate, 618, 896
α-Ketolic steroids. 1187
α-Ketols, 269
Ketones, 37
17-Ketosteroid, 341, 410
Kidney, 36, 61, 118, 124, 147, 151, 153, 157, 177, 206, 217, 230, 234, 240, 252, 256, 260, 270, 272, 284, 291, 297, 309, 362, 370, 385, 394, 405, 450, 452, 480, 499, 531, 567, 578, 596, 607, 620, 646, 651, 654, 755, 1040, 1182, 1399, 1641, 1645, 1648, 1665, 1668, 1669, 1671, 1675, 1684, 1701, 1703, 1708, 1715, 1745, 1753, 1841
Kinetics, 431, 999
Krebs cycle, 449, 930
Kwashiorkor, 1872
Kynurenine, 1079
Kynurenine transaminase, 1010

α-Lactalbumin, 1280
Lactaminic acid, 886
Lactate, 164, 311
Lactic acid, 112, 622, 1167
Lactobacillic acid, 1003
Lactoperoxidase, 1036
Lactose, 1266
Lanosterol, 1056
Lead poisoning, 326
Learning, 117, 143, 436, 461
Leprosy, 1943
Leucocytes, 164, 406, 1119, 1249
Leucyl-AMP, 785
Leukemia, 683, 1680, 1728, 1740, 1742, 1780
Levarterenol, 1621
Lidocaine, 846, 1400
Life span, 69
Light, 135, 1682
Linoleic acid, 1884
Linolenic acid, 1023
Lipase, 158
Lipemia, 305, 1291
Lipids, 165, 193, 273, 616, 1664, 1683, 1685, 1692
Lipogenesis, 703, 1034, 1228, 1679
β-Lipoglobulin, 716
Lipopolysaccharides, 1949
Lipoproteins, 365, 385, 853, 984, 1143, 1212, 1245
Liver, 18, 19, 32, 39, 94, 120, 147, 160, 194, 202, 215, 217, 235, 239, 249, 263, 320, 363, 383, 398, 459, 460, 483, 486, 554, 610, 691, 767, 918, 988, 1034, 1128, 1225, 1287, 1651, 1679, 1687, 1688, 1698, 1736, 1737, 1738, 1757, 1785, 1795, 1837, 1849, 1852, 1866, 1904, 1991
Localization, 113
Locomotion, 140
Luciferase, 127, 1017
Luciferin, 1017
Lungs, 38, 73, 75, 79, 115, 141, 199, 286, 430, 437, 478, 557, 615, 1678
Lupus erythematosus, 1943
Lymph, 596, 1650, 1719
Lymph nodes, 1929
Lymphatics, 222, 250
Lysergic acid, 46, 560, 565, 1395, 1409, 1440
Lysine, 248, 1147, 1194, 1768, 1777, 1817, 1822, 1871

Macroglobulins, 542
Macromolecules, 42, 250
Magnesium, 471, 492, 1043, 1491, 2025
Malic dehydrogenase, 1259, 1265
Mammary tissue, 605
Marine bacteria, 998
Mast cells, 831, 1137, 1646, 1663
Mastitis, 1732
Measles, 1990
3′ MeDAB, 740
Menadione, 809
Menstruation, 85
Meperidine, 1466
Mephentermine, 198
Meprobamate, 1305, 1419
Mercaptalbumin, 931
6-Mercaptopurine, 1478
Mercurials, 351, 639, 1371, 1476, 1591
Mescaline, 1432, 1467, 1592
Mesentery, 1663
Metabolism, 8, 13, 18, 53, 81, 88, 96, 108, 151, 194, 198, 228, 237, 240, 241, 299, 312, 354, 382, 394, 422, 426, 438, 473, 1421, 1675, 1737, 1740, 1773, 1793, 1796, 1800, 1827, 1919
Metals, 1211
Metamorphosis, 833
Metacholine, 1509
Methemoglobin, 1559
Methionine, 646, 756, 791, 1022, 1035, 1185, 1825, 1832, 1861
A-methopterin, 1249
Methoxychlor, 1618
P-methoxyphenylalanine, 772
P-methoxyphenylpyruvate, 772
3-Methylaminoisocamphane hydrochloride, 668
Methylcellulose, 1548
6-Methyl-Δ⁴-desoxymorphine, 564
3′-Methyl-4-dimethylaminoazobenzene, 759, 1172
Methyl histidine, 770
Methylmalonyl CoA, 821
ω-Methylpantothenate, 989
5-Methyl-5-phenylhydantoin, 1505
Methyl-α-phenyl-2-piperideneacetate, 1522
Methyl synthesis, 1087
Methyl testosterone, 839
5-Methyltryptophan, 702
Metrazol, 225
Micrococcus, 40
Microsomes, 934, 986, 1018
Milk, 630, 1014
Millet, 1830
Minerals, 379, 455, 1195
Mink, 1178, 1825
Mitochondria, 174, 260, 906, 1001, 1018, 1052, 1117, 1164, 1196, 1259, 1681
Mitochrome, 1072
Mitoses, 107, 501
Mitral stenosis, 243
Molecular weight, 1190
Molybdenum, 895, 1064, 1838
Monomerization, 1952
Morgan-Elson reaction, 919
Morphine, 1310, 1384, 1391, 1397, 1433, 1434, 1447, 1619, 1633
Mortality, 65, 1649
Motility, 1657
Motion sickness, 1538
Movement recorder, 1284
Mucopolysaccharides, 1106, 1291
Mucormycosis, 1644
Multiple myeloma, 1083
Multiple sclerosis, 1067
Muscle, 13, 67, 68, 90, 101, 149, 176, 197, 279, 282, 296, 302, 340, 386, 391, 393, 462, 517, 524, 525, 538, 614, 621, 648, 1470, 1652, 1660, 1681
Mutarotase, 936
Mutation, 1910
Myasthenia gravis, 440
Mycobacteria, 1998
Myleran, 1489
Myocardial infarction, 280, 1689
Myofibrils, 1652
Myokinase, 1050
Myosin, 63, 360, 848, 874, 892, 1188
Myrothecium verrucaria, 897
Myxomycosin, 1220

Nalorphine, 1434, 1439, 1447, 1633
Nasal 'epithelial' cell, 1939
Necrosis, 1731
Necturus, 230
Nematode, 1107
Nephritis, 1313, 1715
Nephrosis, 1006
Nephrotoxic serum, 1300
Netropsin, 1636
Nerve, 96, 121, 182, 315, 335, 466, 468, 477, 482, 498, 535, 539, 546, 559, 612, 635, 661
Neuromuscular blockade, 1374, 1392, 1463, 1529, 1535, 1626, 1629
Neurospora, 1022, 1598, 2009
Newcastle disease, 2025
Niacin, 1774, 1799, 1812, 1827, 1854
Nicarbazin, 1350
Nickel carbonyl, 1209
Nicotine, 533, 689, 1590, 1615
Nicotinic acid, 872, 875
Nietroesterones, 1250
Nikethamide, 1547
Nitrate, 207, 525
Nitrite reductase, 1174
Nitrofurantoin, 1306
Nitrogen, 255, 741, 1761, 1764, 1769, 1774, 1829, 1843, 1870, 1889
Nitrogen mustard, 249
Nitrous oxide, 1563
Nodes of Ranvier, 535
Nonprotein sulfhydryl, 1098
Norepinephrine, 1, 72, 180, 327, 342, 350, 356, 1054, 1525, 1555, 1615, 1634
Nose, 209
Nuclease, 2010
Nuclei, 552, 1687
Nucleic acid, 710, 795, 876, 1252, 1724, 1755
Nucleohistones, 771
Nucleoproteins, 263, 1066
Nucleosides, 946, 983, 992, 1243, 1309
Nucleotides, 901, 1053, 1153, 1249, 1309
Nutrition, 1667, 1692, 1821
Nystatin, 963

Ogston hypothesis, 928
Olfaction, 43, 91, 613
3β-ol-steroid dehydrogenase, 1766
Omega-methyl-pantothenate, 1677
Opsin, 1235
Optical isomers, 1612
Ormosia panamensis, 1503
Ornithine, 837
Orosomucoid, 555
Osmoreceptor, 113
Osteoarthritis, 1727
Osteoporosis, 1661
Ouabain, 1608, 1632
Oudin serum agar technique, 1974
Ovaries, 367, 423, 444, 667
Ovariectomy, 1827
Ovulation, 189
Ovum, 83
Oxalic acid, 917
Oxalo-acetate, 618
Oxaloglycolate, 958
11-β-oxidase, 1200
Oxidation, 26
Oxidative phosphorylation, 726, 765, 805, 845, 974, 1051, 1199, 1293, 1562, 1583, 1585, 1602
Oximeter, 465
Oxygen consumption, 5, 71, 73, 88, 99, 342, 449, 462, 640, 652
Oxygen toxicity, 72, 404, 445
Oxygen, 25, 35, 216, 231, 311, 343, 349, 364, 464, 468, 1009
Oxyhemoglobin, 509
Oxyluciferin, 1017
Oxytocin vasopressin EEG, 1497

Pain, 1301
Palmitic acid, 762, 1771
Pancreas, 173, 402, 602, 1693, 1752, 1834, 1846
Pancreozymin, 789
Pantoate, 995
Pantothenate, 995
Pantothenic acid, 989, 1765, 1787, 1858, 1860, 1888
Papain, 939, 1214
Papaverine, 1577
Paper chromatography, 1264, 1420
Paper electrophoresis, 236, 505, 1797
Parabiosis, 1639
Paraldehyde, 1451
Parathyroid, 206
Parkinson disease, 1369
Parotid, 20
Pellagra, 1830
Penicillamine, 687, 1285, 1820
Penicillin, 1191, 1868
Pentamethylenetetrazol, 1329
Pentobarbital, 1303, 1314, 1523, 1539, 1600
Pentose, 943, 1152
Pentosuria, 1886
Pepsin, 1157, 1260
Peptic ulcer, 547, 1546
Peptidase, 601, 707
Peptides, 1193
Pertussis vaccine, 1890, 1978
Phagocytes, 1712
Phagocytosis, 253
Phenobarbital, 1521
Phenols, 784
Phenylketonuria, 634
Pheonthiazines, 1302
Phlorizin, 394
Phosphatases, 400, 693, 1115, 1518, 1606
Phosphates, 46, 138, 233, 254, 517, 607, 1044
Phosphatides, 669, 1797
Phosphodiesterase, 1081
Phosphoenolpyruvate, 1179
Phosphoglyceride, 1080
Phospholipids, 899, 1005, 1020, 1246, 1264, 1614
Phosphopeptides, 1135
5-Phosphoribosylamine, 857, 878
Phosphorus, 53, 92, 796
Phosphorylase, 841, 956, 1091
Phosphorylation, 260, 405, 765, 913, 1013, 1072, 1076, 1170
Photophosphorylation, 847
Photosynthesis, 1214
Phototropism, 502
Phytic acid, 1149
Picolinic acid, 1024
Pilocarpine, 534
Piperazines, 178
Pitressin, 30
Pituitary, 20, 137, 189, 205, 228, 252, 346, 359, 602, 637, 1662, 1672, 1722, 1727, 1765
Placenta, 518, 901
Plague, 1893
Plant juices, 53
Plasma, 11, 187, 192, 248, 775, 786, 1042, 1139, 1616, 1642, 1746, 1924
Plasmapheresis, 2002
Plasmin, 1290, 1975
Plasminogen, 619, 1297
Platelets, 51, 92, 126, 401, 949
Pneumothorax, 479, 557
Polarography, 109, 434, 550
Poliomyelitis, 1653, 1891, 1900, 1903, 1932, 1962, 1967, 1969, 1992
Poliomyelitis virus, 798, 825, 927, 1429, 1669, 1895, 1909, 1919, 1955, 1964, 1985, 1993, 2013, 2016, 2034
Polydipsia, 12
Polyenes, 1159
Polyglutamates, 170
Polyneuritis, 2023
Polynucleotides, 734, 891, 1239
Polypeptides, 1181
Polysaccharides, 631, 1656, 1690
Polyvinylpyrrolidone, 1963
Porphyrins, 967
Posture, 484
Potassium, 2, 121, 238, 282, 319, 386, 399, 427, 451, 452, 475, 549, 725, 758, 988, 1287, 1665, 1689, 1691, 1798, 1841
Potentials, 293
Precipitin reaction, 1984
Prednisolone, 1479
Prednisone, 1137, 1479
Pregnancy, 85, 122, 323, 332, 376, 440, 497, 522, 564, 844
Prephenic acid, 849
Pressor amines, 1332, 1394, 1412
Procaine, 1353
Prodigiosin, 1131
Progesterone, 29, 994
Prolactin, 1095
Properdin, 1913, 1949, 1965, 2025
β-Propiolactone, 1682
Propionate, 821, 969, 1074, 1180
Propylthiouracil, 1958
Protamine, 287, 827
Proteases, 1278
Proteins, 10, 211, 345, 454, 457, 496, 555, 630, 636, 634, 880, 1047, 1083, 1141, 1157, 1184, 1243, 1645, 1672, 1693, 1708, 1720, 1730, 1738, 1788, 1792, 1793, 1855, 1863, 1874, 1879, 1970, 2018
Proteinuria, 1006
Proteolipids, 938
Proteolysis, 1699
Prothrombin, 278, 964, 1151, 1642, 1702
Protoporphyrin, 674
Pteroylglutamic acids, 888, 1275, 1844
Pulse wave, 503
Purine, 382, 941, 1206, 1240, 1309, 1755, 1971
Putrescine, 1201
Pyridine nucleotides, 809, 915, 937, 991, 999, 1224, 1774
Pyridoxal, 1104, 1144
Pyridoxine, 793, 1709, 1781
Pyrimethamine, 1578
Pyrimidines, 860, 941
Pyrogens, 804, 1473, 1530
Pyrophosphatases, 1150
Pyrophosphate, 934, 1017
Pyruvate, 96, 101, 311, 1177

Q-enzyme, 841
Q fever, 2014
Quantum efficiency, 739
Quinolinic acid, 872, 890

Radiation, 65, 221, 244, 289, 406, 441, 491, 493, 628, 742, 1299, 1699, 1751
Radioactive metabolites, 1775
Radiobiology, 1339, 1340, 1360, 1366, 1411, 1511, 1518, 1531, 1556, 1584, 1606
Radiocolloid, 1317
Radiostrontium, 570, 1328
Rauwolfia alkaloids, 1307
Reabsorption, 230, 499
Rectal polyps, 1696
Reflexes, 16, 168, 258, 265, 271, 272, 328, 433, 466, 513, 514, 574, 580, 592, 604, 647, 655
Relaxin, 367, 792
Renal pharmacology, 1436, 1446, 1450, 1536
Renin, 208
Reproduction, 1658, 1674
Reptiles, 786
Reserpine, 35, 1334, 1337, 1348, 1356, 1388, 1415, 1419, 1423, 1431, 1440, 1454, 1462, 1465, 1467, 1498, 1508, 1522, 1573, 1592, 1603, 1658
Respiration, 110, 115, 123, 200, 220, 314, 315, 336, 347, 368, 373, 414, 430, 447, 448, 453, 464, 465, 478, 484, 495, 503, 504, 545, 600, 665, 1677, 1756, 1981
Resuscitation, 100
Reticuloendothelium, 156, 288, 292, 485, 522, 673
Retinene, 904
Rhamnose, 843
Rheumatoid arthritis, 811
Rhizopus MX, 1004
Rhodopsin, 904, 1235
Rhodospirillum rubrum, 847, 1170
Riboflavin, 738, 865, 1390, 1829
Ribonuclease, 685, 732, 789, 1117, 2010
Ribonucleic acid, 776, 858, 918, 1060, 1075, 1141, 1230, 1736
Ribonucleoprotein particles, 986
Ribose-5-phosphate, 790
Riboside, 695
Riboside hydrolase, 1202
D-Ribulose 5-phosphate, 907
Rickettsiae, 1899, 1995
Ring A, 1111
Ryanodine, 1385, 1426, 1527

Salicylate, 1298
Salicylic acid, 1981
Salivary gland, 534
Saponins, 1627
Sarin, 331, 1030, 1135
Saturation, 1223
Scintillation, 720, 1219
Scleroprotein, 837
Scorbutic guinea pigs, 945
Sero-survey, 1996
Scurvy, 743, 1711
SDA, 1788
Secobarbital, 1460, 1600
Secretion, 212, 304
Secretin, 1509
Sedimentation, 666
Selenium, 1015, 1417
Semen, 1258
Senecioic acid, 1248
Senna, 1588
Sensitivity, 2018
Septal defect, 371
Sequence studies, 939
Serine, 687, 778, 791, 893, 905, 916, 942, 947, 1033, 1885
Serotonin, 1334, 1348, 1356, 1359, 1393, 1415, 1465, 1467, 1480, 1573, 1605
Serum, 779, 788, 839, 1863
Serum protein, 683, 708, 709, 920, 979, 1015, 1116, 1138, 1237, 1255, 1716, 1750, 1831
Serylhistidylleucylvalylglutamic acid, 1028
Sex hormones, 1827
Sexual differentiation, 990
Shikimic acid, 1179
Shivering, 60
Shock, 175, 177, 274, 398, 420, 543, 563, 575, 576, 948, 1196, 1292, 1452, 1532, 1549, 1554, 1634
Shwartzman reaction, 2015
Sialic acid, 886
Sialoadenectomy, 1241
Sickle-cell, 1041
Sicklemia, 2
Silica, 1659
Silico-molybdate, 913
Silicosis, 1678
Silkworms, 1269
β-Sitosterol, 704
SKF 525 A, 1433
Skin, 85, 172, 226, 259, 289, 312, 491, 500, 658, 829, 1484, 1537, 1720, 1739, 1749
Sleep, 144
Smallpox, 1935
Snake venoms, 154
Sodium, 2, 22, 24, 70, 116, 148, 238, 319, 386, 475, 549, 621, 725, 998, 1437, 1539, 1691, 1790
Somatotrophin, 102, 122, 228, 325, 359, 701, 842, 1357, 1553, 1649, 1765, 1779
Soybeans, 1157, 1861
Soy sterols, 1856
Sparteine, 1383
Spermidine, 1201
Spermine, 1201, 1242, 1595
Sphingolipides, 641
Spinal fluid, 283
Spleen, 174, 1728
Squalene, 395
Staphylokinase, 1918
Starch, 1802
Starfish, 502
Stearic acid, 762
Stellate ganglion, 506
Sterilization, 1682
Steroid, 106, 175, 380, 518, 611, 722, 766, 836, 1111, 1125, 1251, 1764
Sterol, 829, 1175, 1707, 2022
Stibophen, 1320
Stilbestrol, 1221
St. Louis encephalitis virus, 1901
Stomach, 148, 212, 304, 321, 400, 582, 1718
Strandin, 826, 1089
Streptococcus, 1902, 1942, 1988
Streptogenin, 1028
Streptokinase, 1297
Streptolysin O, 1989
Streptomyces griseus, 1238
Stress, 161, 166, 206, 377, 439, 561, 1270, 1793
Stretch receptors, 1579
Striopallidium, 572
Strontium, 1704, 1881
Strychnine, 476
Succinate, 1007
Succinic dehydrogenase, 699, 932, 1011, 1094, 1232
Succinoxidase, 897, 1879
6-Succinylaminopurine, 748
Sucrose, 1213, 1802
Sudan black B, 715
Sugar-amino acids, 1045
Sulfaethylthiadiazole, 1375
Sulfaguanidine, 1758
Sulfatase, 1062
Sulfate, 784, 1105, 1838
Sulfathiazole, 911, 1755
Sulfhydryl, 709, 1041, 1077, 1090
Sulfide, 700
Sulfonamides, 1544
Sulfonated lignin, 1474
Sulfur, 1823, 1857, 1888
Surface tension, 79
Sweat, 196
Sympathectomy, 125
Synapses, 281, 606
Synovial fluid, 1047, 1070
Synthesis, 1032
Syphilis, 1943

Tabun poisoning, 1318
TAMe assay, 1642
Tapazole, 623
Tartaric acid, 693, 953, 958
Taurine, 996
Tea, 1836
Temperature, 136, 172, 210, 284, 289, 301 303, 320, 326, 559, 587, 590, 597, 614, 2032
Temperature regulation, 218, 223, 308, 316, 329, 372, 425, 428
Teratogenic action, 774
Testes, 415
Testosterone, 457, 608, 834, 1134
Tetanus toxoid, 2000
Tetrahymena, 805, 898
Tetramethylammonium chloride, 1025
Tetrazolium, 912
Thai, 1807
Thalamus, 265
Theobromine, 768
Theophylline, 768
Thermal inactivation, 2034
Thetins, 1140
Thiamin deficiency, 728
Thiamylal, 1514
4-Thiazolidinecarboxylic acid, 859, 997
Thiobarbital, 1324
Thiocholesterol, 757
Thioctic acid, 1587
Thio-esters of acylated glycine, 1625
Thioketone, 675
Thiopental, 1092, 1282, 1333, 1514
Thiosulfate, 700
Thiouracil, 1582, 1790
Thiourea pleural effusion, 997
Thirst, 372
Threonine, 926, 1222
Thrombin, 922, 1151
Thromboplastin, 251, 1158
Thymidine triphosphate, 950
Thymine, 817, 828, 1276
Thymus, 319, 1485, 1575, 1586, 1710

Thyroglobulin, 1999
Thyroid, 1, 137, 317, 318, 396, 444, 454, 1001, 1241, 1572, 1585, 1671, 1697, 1732, 1758, 1786, 1850, 1852, 1987
Thyrotropic hormone, 80, 205, 761, 1069
Thyroxine, 26, 55, 240, 497, 539, 597, 962, 1265, 1390, 1471
Tidal volume, 123
Tissue, 344, 345, 1643, 1645, 1713, 1793
Tissue culture, 1652, 1899, 1915, 1961, 1993, 2011, 2028
Tissue gas tensions, 624
Tissue slices, 81
Tobacco mosaic virus, 927, 1120, 1186
Tocopheryl, 1013, 1846, 1886
p-Tolyl azo fibrinogen, 820
Tomatoes, 1159
Toxicity, 237, 1791
Toxins, 77, 397, 1893, 1898
Toxoplasma, 1673, 1913
Tracers, 1645, 1664, 1671, 1690, 1740
Transacetalation, 1068
Transamidinase, 837, 1236
Transamination, 921
Transferase, 819, 892
Transformylation, 1240
Transfusion, 98
Transketolase, 728, 902
Trans-L-epoxysuccinate, 1008
Transmethylation, 1169
Transplantation, 1655, 1680, 1686, 1727, 1734, 1778, 1780
Trauma, 549, 863, 1977
Trehalose, 1269
Tremor, 656
Treponema pallidum, 1657
Tricalcium phosphate, 1273
Tricarboxylic acid, 696, 1795, 1882
2,2,2-trichloro-1-hydroxyethylcarbamic acid, 237
Triiodothyronine, 318, 823, 1123, 1958
Trimethadione, 1597
Triose phosphate isomerase, 1103
Tripalmitin, 1100
Tropics, 1883
Tris, 952
Triton, 1143
Trycyclene, 1326
Trypsin, 705, 1030, 1135, 1154, 1210, 1244, 1278, 1425
Tryptophan, 890, 1078, 1079, 1774, 1799, 1812, 1828, 2009
Tubercle bacilli, 1998, 2028
Tuberculosis, 1958, 1973
Tubule, 725
Tumors, 324, 348, 426, 583, 589, 670, 703, 824, 1016, 1101, 1176, 1267, 1316, 1543, 1655, 1662, 1680, 1694, 1696, 1713, 1714, 1728, 1744, 1748, 1811
Tungsten, 895
Tween, 20
Two-strand structure, 1146
Typhoid fever, 1916, 2004
Typhus, 2014
Tyrosinase, 731, 877, 1822
Tyrosine, 363, 849

Ultrasound, 295
Ultraviolet light, 20, 1239, 1643, 1682, 2013
β,γ-Unsaturated 3-ketosteroids, 1203
Uracil, 94, 745, 871, 884, 894
Urea, 531, 1030, 1791, 1997
Uremia, 1997
Urethane, 805
Uric acid synthesis, 1033
Uridine, 224, 852, 1274
Urine, 397, 611, 836, 1102, 1165, 1473
Uterus, 360, 376, 496, 626

Vaccines, 1965
Vaccinia virus, 2024
Vagus, 529
Valine, 730, 1191
Vanillin, 975
Vasopressin, 106, 1281, 1558, 1632
Venoconstriction, 521, 2032
Ventilation, 38, 73, 665
Ventricle, 70
Veratridine, 1608
Veratrum, 1341
Vesiculase, 1258
Virus T7, 1177
Vision, 134, 188, 201, 204, 293, 313, 482
Visual pigment, 134
Vitamin A, 365, 965, 1759, 1783, 1794, 1810, 1842, 1864, 1872
Vitamin B6, 1813, 1863
Vitamin B12, 87, 235, 653, 779, 1033, 1223, 1654, 1785, 1814, 1847, 1850, 1857, 1866, 1873, 1875
Vitamin B's, 1814, 1818, 1887
Vitamin C, 1711, 1839
Vitamin D, 783, 1741, 1779, 1798
Vitamin E, 379, 754, 1781, 1789, 1833, 1837, 1846, 1866, 1867, 1869, 1882
Vitamin K, 421, 1833
Vocal cords, 200
Vomiting, 66

Wasserman antibody, 1976
Water, 153, 171, 190, 320, 428, 456, 603, 1831
Water balance, 532, 671, 749
Weight, 152, 520, 1649
Wilson's disease, 36
Work, 21

Xanthine oxidase, 1271, 1879
Xanthomatosis, 1831
Xanthosine phosphate, 711, 1038
Xenon, 1520
X-irradiation, 15, 66, 76, 82, 95, 162, 229, 238, 249, 266, 276, 419, 420, 445, 500, 551, 562, 598, 599, 749, 795, 862, 1034, 1262, 1641, 1648, 1649, 1655, 1663, 1682, 1694, 1697, 1699, 1704, 1712, 1723, 1725, 1743, 1749, 1750, 1751, 1901, 1921, 1933, 1936, 1951, 1959, 2000
Xylitol, 1216
Xylulose, 902, 907, 1216

Yeast, 48, 300, 776, 1051, 1141, 1224, 1664
Yttrium, 961, 1116

Zinc, 1492, 2019

DIRECTORY OF COUNCIL AND COMMITTEE MEETINGS AND SPECIAL FUNCTIONS

SATURDAY, APRIL 14

Meetings

Histochemical Council—4:00 and 8:30 P.M. (*Rowsley Rm., Haddon Hall*)
AIBS Advisory Committee on Biology—9:00 A.M. (*Belmont Rm., Ritz-Carlton*)

Dinners

Histochemical Council Dinner—6:30 P.M. (*Bakewell Rm., Haddon Hall*)

SUNDAY, APRIL 15

Meetings

Federation Board—7:30 P.M. (*Bakewell Rm., Haddon Hall*)
Physiology Council—9:00 A.M. (*Card Rm., Haddon Hall*)
Biochemistry Council—9:00 A.M. (*Rm. 72, Chalfonte*)
Pharmacology Council—1:00 P.M. (*Library, Haddon Hall*)
Pathology Council—9:00 A.M. (*Committee Rm. A, Haddon Hall*)
Nutrition Council—9:00 A.M. (*Rm. 134, Haddon Hall*)
Immunology Council—9:00 A.M. (*Navajo Rm., Haddon Hall*)
Biochemistry Membership Committee—9:00 A.M. (*Rm. 71, Chalfonte*)
Pharmacol. Revs. Ed. Bd.—10:00 A.M. (*Sun Porch, Haddon Hall*)
Pharmacology Membership Committee—7:00 P.M. (*Library, Haddon Hall*)
Soc. for Exper. Biol. & Med. Membership Committee—3:30 P.M. (*Studio, Dennis*)
Soc. for Exper. Biol. & Med., Secretaries Meeting—7:00 P.M. (*Board Rm., Dennis*)
Walter Reed Society—4:30 P.M. (*Ritz Rm., Ritz-Carlton*)
SGO Contractors, Irradiated Foods Program—4:00 P.M. (*Sun Rm., Ritz-Carlton*)
AIBS Advisory Committee on Biochemistry—9:00 A.M. (*Belmont Rm., Ritz-Carlton*)
Poultry Nutrition Conference—2:00 and 7:00 P.M. (*Rm. 21, Convention Hall*)
Radiation Effects—8:30 P.M. (*St. Dennis Rm., Dennis*)
Histochemical Soc. Scientific Sessions, 9:15 A.M. and 2:30 P.M. (*Rm. 13, Convention Hall*)
Am. Soc. for Artificial Internal Organs Scientific Session—2:00 P.M. (*Rm. 20, Convention Hall*)

Dinners

Federation Board—6:00 P.M. (*Rowsley Rm., Haddon Hall*)
Artificial Internal Organs Society—7:00 P.M. (*Colonial Dining Rm., Madison*)

Evening

Histochemical Society Cocktail Party—8:00 P.M. (*Rutland Rm., Haddon Hall*)

MONDAY, APRIL 16

Meetings

Physiology Council—9:00 A.M. (*Rm. 1344, Haddon Hall*)
Biochemistry Council—9:00 A.M. (*Rm. 72, Chalfonte*)
Pharmacology Council and Membership Committee—9:00 A.M. (*Rm. 1335, Haddon Hall*)
Pathology Council—9:00 A.M. (*Rm. 1337, Haddon Hall*)
Nutrition Council—9:00 A.M. (*Rm. 134, Haddon Hall*)
Immunology Council—9:00 A.M. (*Rm. 1332, Haddon Hall*)
Biochemistry Membership Committee—9:00 A.M. (*Rm. 71, Chalfonte*)
Pharmacology Educational Affairs Committee—9:00 A.M. (*Sun Porch, Haddon Hall*)
Physiol. Revs. Ed. Bd.—9:00 A.M. (*Library, Haddon Hall*)
Jrl. Pharmacol. & Exper. Therap. Ed. Bd.—1:00 P.M. (*Sun Porch, Haddon Hall*)
Nutr. Revs. Ed. Staff—3:00 P.M. (*Blue Rm., Chalfonte*)
Am. Bd. of Nutr. Meeting and Exams.—9:00 A.M. (*Zodiac Rooms A & B, Chalfonte*)
Exhibitors Advisory Committee and Federation Secretaries—9:00 P.M. (*Claridge*)
Soc. for Exper. Biol. & Med. Bd. of Eds.—9:00 A.M. (*Board Rm., Dennis*)
Soc. for Exper. Biol. & Med. Council—2:45 P.M. (*Board Rm., Dennis*)
Walter Reed Society—4:30 P.M. (*Ritz Rm., Ritz-Carlton*)
Histochemical Soc. Symposium—9:00 A.M. (*Rm. 20, Convention Hall*)
Histochemical Soc. Scientific Session, Section A—2:00 P.M. (*Rm. 11, Convention Hall*)
Histochemical Soc. Scientific Session, Section B—2:00 P.M. (*Rm. 13, Convention Hall*)
Am. Soc. for Artificial Organs Scientific Session—9:00 A.M. and 1:15 P.M. (*Rm. 10, Convention Hall*)

Luncheons

Jrl. of Nutr. Ed. Bd.—12:15 P.M. (*Rowsley Rm., Haddon Hall*)
Soc. for Exper. Biol. & Med. Eds.—1:00 P.M. (*The Tent, Dennis*)

Dinners

Pharmacology Joint Ed. Bds.—7:00 P.M. (*Green Rm., Ritz-Carlton*)
Nutr. Revs. Ed. Staff—6:00 P.M. (*Roberts Rm., Chalfonte*)
Soc. for Exper. Biol. and Med. Council—6:30 P.M. (*The Tent, Dennis*)
*Pain—6:30 P.M. (*Col. Dining Rm., Madison*)
*Soc. of Young Medical Educators—7:30 P.M. (*East Dining Rm., Madison*)
Univ. of Southern California Biochemists—6:30 P.M. (*North Dining Rm., Madison*)

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* By Invitation

SCIENTIFIC SESSIONS SCHEDULE—Atlantic City, N. J., April 16–20, 1956

Location		Mon., April 16	Tues., April 17		Wed., April 18		Thurs., April 19		Friday, April 20	
		p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
CONVENTION HALL	Room A	NUTR Gen. Nutr.	PHYSIOL Axonology	NUTR B. Vitamin	NUTR Lipids	BIOCHEM Complex Lipids Chem. & Metab.	NUTR Vitamin E	NUTR Gen. Nutr.	NUTR Proteins	NUTR Inorganic Elements
	Room B	BIOCHEM Protein Metab.	INTERSOC Blood Clotting I	BIOCHEM Protein Synth. Business	BIOCHEM CHO Metab. II	BIOCHEM Oxidative Phosphoryl. I	BIOCHEM Lipids—Inter. Metab.	BIOCHEM Oxidative Phosphoryl. II Business	BIOCHEM Krebs Cycle & Decarboxyl.	BIOCHEM Amino Acid Metab. IV
	Room C	BIOCHEM Enzyme, DPN Act. & Active Sites	INTERSOC Tumors II Metab.	BIOCHEM Enzymes—Proteolytic	BIOCHEM Enzymes—Gen. I	BIOCHEM Enzymes—Gen. II	BIOCHEM Enzymes of CHO Metab.	BIOCHEM Steroid Hormones Metab.	BIOCHEM Cytochr. & Succinic dehydrase	BIOCHEM CHO Chem. & Metab.
	Room D	BIOCHEM Enzyme Inhibitors	INTERSOC Atherosclerosis II	BIOCHEM CHO Metab. I	BIOCHEM Plasma Protein Chem.	BIOCHEM Amino Acid Chem.	BIOCHEM Protein Chemistry	BIOCHEM Amino Acid Metab. II	BIOCHEM Amino Acid Metab. III	BIOCHEM Thyrox. & Thyrotopic Horm.
	Room E	BIOCHEM Chem. of RNA & Derivs.	PHYSIOL Muscle: Basic Contraction Mech.	BIOCHEM Purine Metab.	BIOCHEM Cytochem.	BIOCHEM Viruses, Nucleoprot., & DNA	BIOCHEM Pyrimidine, Nucleoside & Nucleotide	BIOCHEM DNA Metab. & Bacteriophage	BIOCHEM RNA Metab.	BIOCHEM Citrovorum Factor & Folacin
	Room F	PHYSIOL Insulin–Diabetes	PHYSIOL Brain: EEG—Stimulation	PHYSIOL Brain	PHYSIOL Brain-Metab. & Activity	PHYSIOL Neurophysiol.	PHYSIOL Neurophysiol: Reflexes	PHYSIOL Vision	PHYSIOL Hearing—Sense Organs	PHYSIOL Physiochem. Methods
	Room S	NUTR Niacin, Trypto., Pan. Acid.	PHYSIOL Symposium: Biology of Aging	NUTR Vitamin A & Antibiotics Business	NUTR Amino Acids	BIOCHEM Metabolic Effects of Insulin	NUTR Inorganic Elements	INTERSOC Symposium: Irrad. Foods Nutr: Business	NUTR Human Nutr.	
	Ballroom	INTERSOC Atherosclerosis I	BIOCHEM 50th Anniversary Symposium	INTERSOC Atherosclerosis III	BIOCHEM Teaching Symposium	NUTR Symposium: Prot. & Amino Acids	PHYSIOL Temp. Reg.—Hypothermia	PHYSIOL Acclimitiz. to Cold—Hybern.	PHYSIOL Gastric Secretion	
	Room 6	BIOCHEM Sterols—Bile Acids		BIOCHEM Plant Biochem.	INTERSOC Blood Clotting II	INTERSOC Blood Clotting III	BIOCHEM Inorg. Metab.	BIOCHEM Mucopolysaccharides	BIOCHEM Estrogens—Chem. & Metab.	PHYSIOL GI Physiol.
	Room 20	IMMUN Tissue Culture General	IMMUN Polio I	IMMUN Polio II Business	IMMUN Rickettsiae, Neurotropic & Other Viruses	IMMUN Influ. & APC (ARD) Viruses	IMMUN Immunization	IMMUN Bacteriology General	PHYSIOL Erythrocytes	PHYSIOL CHO Metab.—Enzymes
	Room 21	INTERSOC Tumors I: Nutr. & Metab. Microorg. I	IMMUN Antigens & Antibodies I	IMMUN Antigens & Antibodies II Microorg. II	IMMUN Antigens & Antibodies III Tumors IV General	IMMUN Antigens & Antibodies IV Steroid Horm.: Biosyn. & Action	IMMUN Blood Groups; Toxins Amino Acid Metab. I	IMMUN Complement; Properdin Adapt. Enzymes, Coenzymes	BIOCHEM Nutrition Fatty Acids & Glycerides	BIOCHEM Chem. of Lipoproteins Steroid Horm. Chem.
	Room 11		PATHOL	INTERSOC	PATHOL	PATHOL	PATHOL	PATHOL	PHYSIOL	PHYSIOL

	Room 21	INTERSOC Tumors I: Nutr. & Metab.	IMMUN Antigens & Antibodies I	IMMUN Antigens & Antibodies II	IMMUN Antigens & Antibodies III	IMMUN Antigens & Antibodies IV	IMMUN Blood Groups; Toxins	IMMUN Complement; Properdin	BIOCHEM Nutrition	BIOCHEM Chem. of Lipoproteins
		Microorg. I		Microorg. II	Tumors IV General	Steroid Horm.: Biosyn. & Action	Amino Acid Metab. I	Adapt. Enzymes, Coenzymes	Fatty Acids & Glycerides	Steroid Horm. Chem.
	Room 11		PATHOL Transplant., Cell Studies, RE	INTERSOC Tumors III Carcinogens—Anticarcin.	PATHOL Endocrine Metab. & Morph.	PATHOL Tumors	PATHOL Idiopath. Dis., Therm. Injury, Tissue Repair	PATHOL Vitamins & Enzymes	PHYSIOL Effects of Temp. Calorim.	PHYSIOL Effects of Heat—Sweating
	Room 13		PATHOL Infectious Agents	PATHOL Viruses / Businesss	PATHOL Cardiov. Dis., Hypertension	PATHOL Kidney, Nephrotoxic Nephritis	PATHOL Liver & Biliary Sys.	PHYSIOL Muscle: Contr., Energy, Metab.	PHYSIOL Cellular & Comparative	
DENNIS	St. Dennis Room	PHYSIOL Heart: Metab.—Dynamics	PHYSIOL Heartwork—Dynamics	PHYSIOL Bloodflow; Vasc. Perm.	PHYSIOL Heart—Coronary	PHYSIOL Haemodynamics	PHYSIOL Heart: Elect. Act., Fibril.	PHYSIOL Hypertension	PHYSIOL Circ.—Adren., Noradren.	
	Garden Lounge	INTERSOC Radiobiol.: Mod. of Radio Sens.	INTERSOC Radiobiol.: Effects on Enzym. & Liver	INTERSOC Radiobiol.: Physiol. Effects I	INTERSOC Radiobiol.: Physiol. Effects II	INTERSOC Radiobiol.: Immun. & Leukocytes	INTERSOC Cholinesterase I	INTERSOC Cholinesterase II	PHYSIOL Lipids—RES	
	North European Room	PHYSIOL Kidney—Clearance—Circ.	PHYSIOL Kidney: Metab. & Reabsorp.	PHYSIOL Kidney: Water Bal. & Diuresis	PHYSIOL Electrolytes	PHYSIOL Transport of Electrolytes	PHYSIOL Kidney—Regul.—Reabsorp.	PHYSIOL Blood Vol.—Meth.—Expand.	PHYSIOL Shock, Burns, Bleeding, Trauma	
RITZ-CARLTON	Ballroom	PHARM Drug. Metab. I	PHARM Neuropharm. I	PHARM CNS—Depres. / Business	PHARM Analgesic Drugs	PHARM Anticonvulsants	PHARM Neuropharm. II	PHARM Autonomics III / Business		
	Carlton Room	PHARM Drug Toxicity	PHARM Drug Metab. II	PHARM Drug Metab. III	PHARM Oxidative Phosphoryl.	PHARM Chemotherapy	PHARM Renal Pharm.	PHARM Anti-inflam. Agents	PHARM GI; Hormone	
	Meeting Room	PHARM Cardiov. I	PHARM Cardiov. II	PHARM Cardiov. III	PHARM Muscle & Ganglia	PHARM Autonomics I	PHARM Autonom. II	PHARM Psycho-pharm.	PHARM Behavioral pharm.	
MARLBOROUGH-BLENHEIM	Wedgewood Room	PHYSIOL Resp.: Mech.—Elast. of Lungs	PHYSIOL Resp.: Lung Gases, Control	PHYSIOL Pulm.: Bloodflow, Diffusion	PHYSIOL Teaching Session	PHYSIOL Metab. of Liver—Enzymes	PHYSIOL Altitude—Human Physiol.	PHYSIOL Resp.: Hypox.—Altitude	PHYSIOL Resp.: CO_2 Acid-Base	
	Ocean Hall	PHYSIOL Gonads, Reproduction	PHYSIOL Adrenal Cortex—Metabol. Effects	PHYSIOL Adrenal Cortex, Stress	PHYSIOL Ovaries, Testes, Pregnancy	PHYSIOL Thyroid	PHYSIOL Pitressin—Growth Horm.	PHYSIOL ACTH—Adrenals	PHYSIOL O_2 Poisoning	

EVENING SESSIONS

Monday, April 16

Motion Picture Session, 8:00 P.M., CONVENTION HALL BALLROOM

Pharmacology-Biometrics Symposium on Synergism, 7:30 P.M., RITZ-CARLTON BALLROOM

Tuesday, April 17

Joint Session, 8:00 P.M., CONVENTION HALL BALLROOM

Wednesday, April 18

Immunology Symposium on Antibody Formation, 8:00 P.M., CONVENTION HALL, ROOM 20

Muscular Dystrophy Assoc. Grantees and Guests —7:00 P.M. (*Ozone Rm., Dennis*)
American Heart Assoc. Investigators—7:00 P.M. (*Location to be announced*)

Evening

*V du V Group—9:30 P.M. (*Board Rm., Claridge*)

TUESDAY, APRIL 17

Meetings

Jrl. of Biol. Chem. Ed. Committee and Bd. of Eds. —5:00 P.M. (*Rutland Rm., Haddon Hall*)
Soc. for Exper. Biol. & Med. Business Meeting—9:00 A.M. (*Studio, Dennis*)

Luncheons

Univ. of Illinois—12:15 P.M. (*North Dining Rm., Madison*)
Cornell Biochem. and Nutr.—12:30 P.M. (*Jefferson*)
Univ. of California Biochemist Graduates and Fellows—12:15 P.M. (*Jefferson*)
Yale Univ. Physiological Chemists—12:00 P.M. (*Madison*)
Oregon State College Alumni Reunion—12:15 P.M. (*East Dining Rm., Madison*)

Dinners

Physiology Joint Ed. Bds.—6:00 P.M. (*West Rm., Claridge*)
Jrl. of Biol. Chem. Ed. Committee and Bd. of Eds.—7:00 P.M. (*Rutland Rm., Haddon Hall*)
E. V. McCollum Alumni—6:30 P.M. (*Crillon Hotel*)
Univ. of Michigan Biochemists—5:30 P.M. (*Fox Manor Hotel*)
Univ. of Rochester—6:30 P.M. (*East Dining Rm., Madison*)
Liver—6:00 P.M. (*Col. Dining Rm., Madison*)

Evening

*St. Louis Univ. Biochem.—9:00 P.M. (*James Madison Rm., Madison*)

WEDNESDAY, APRIL 18

Meetings

Discussion Group on Blood Oxygen Tension Determinations by Polarographic Methods—4:00 P.M. (*Rm. 10, Convention Hall*)
*Committee on Biol. Chem., NRC, Meeting on Purity of Biochemicals—4:00 P.M. (*Rm. 15, Convention Hall*)
*Viral and Rickettsial Registry—4:00 P.M. (*The Tent, Dennis*)
Meeting of Biophysicists—8:00 P.M. (*Green Rm., Ritz-Carlton*)

Breakfasts

Home Ec. Alumnae of Univ. of Chicago—7:00 A.M (*Dining Rm. A, Jefferson*)
State Univ. of Iowa—7:45 A.M. (*Colonial Rm., Madison*)

* By Invitation

Luncheons

*Harvard Biological Chemists—12:15 P.M. (*Terrace Rm., Ritz-Carlton*)
Univ. of Chicago Reunion—12:15 P.M. (*Green Rm., Ritz-Carlton*)

Dinners

Biochemistry Society 50th Anniversary Banquet —7:00 P.M. (*Carolina Rm., Chalfonte*)
Pharmacology Society—7:00 P.M. (*Rose Rm., Marlborough-Blenheim*)
Pathology Society—6:30 P.M. (*Solarium, Madison*)
Nutrition Society—6:30 P.M. (*Main Dining Rm., Madison*)
*Adrenal—7:00 P.M. (*Solarium, Jefferson*)
*Circulation—6:00 P.M. (*Main Dining Rm., Jefferson*)
*Comparative Physiology—7:00 P.M. (*Blue Rm., Columbus*)
Gastrointestinal—6:30 P.M. (*Hackney's*)
Univ. of Wisconsin Alumni Cocktails—5:00 P.M. (*Music Rm., Chalfonte*)

THURSDAY, APRIL 19

Meetings

Panel Discussion: "Interpretation of Data on Isotope-Labeled Proteins of Biological Significance"—Metab. and Nutr. Study Sec., NIH—8:00 P.M. (*Viking Rm., Haddon Hall*)
Neuro-Endocrine Discussion on Hypothalamus—8:00 P.M. (*West Rm., Haddon Hall*)

Dinners

Coagulation—6:30 P.M. (*E. Dining Rm., Madison*)
*Metabolic Discussion—6:30 P.M. (*Solarium, Madison*)
*Respiration—6:30 P.M. (*Colonial Dining Rm., Madison*)
*Temp. Reg.—6:30 P.M. (*N. Dining Rm., Madison*)

FRIDAY, APRIL 20

Meetings

Cancer Chemotherapy Natl. Service Ctr., NIH, Meeting of *ad hoc* Analysis Sub-Committee—1:15 P.M. (*Studio, Dennis*)
AIBS Advisory Committee on Physiology to ONR —9:00 A.M. (*Belmont Rm., Ritz-Carlton*)

SATURDAY, APRIL 21

Meetings

Cancer Chemotherapy Natl. Service Ctr., NIH, Meeting of *ad hoc* Analysis Sub-Committee—9:00 A.M. (*Studio, Dennis*)
Metab. and Nutr. Study Sec., NIH—9:00 A.M. (*Mandarin Rm., Haddon Hall*)

SUNDAY, APRIL 22

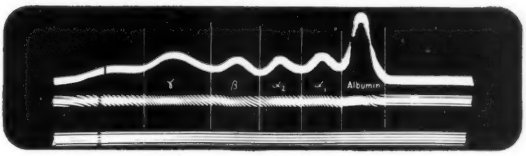
Meeting

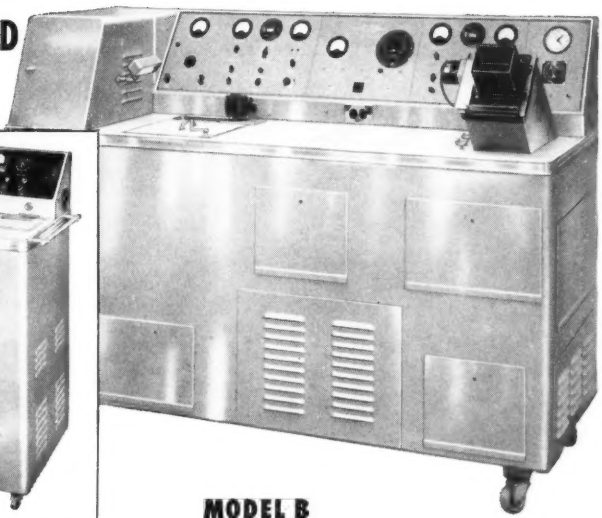
Metab. and Nutr. Study Sec., NIH—9:00 A.M. (*Mandarin Rm., Haddon Hall*)

AMINCO

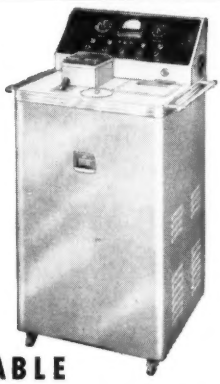
MODEL B ELECTROPHORESIS

has this to say about PROTEINS IN HUMAN BLOOD





Compact Model Fits Into a Corner Of Your Lab



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MODEL B FEATURES INTERFERENCE AND SCHLIEREN PATTERNS

Notice how clearly various proteins are identified on both schlieren and interference patterns in the above photograph. Test sample was human serum. Breakdown of components shows albumin, alpha-1, alpha-2, beta, and gamma components. Tracings are typical of the excellent patterns produced in the Model B, which offers capabilities for every necessary application: rapid routine analysis, preparatory work on a large scale, interferometric analysis for basic research, or specialized procedures such as diffusion or adsorption studies.

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